



# ARMOR

*Mounted Maneuver Journal*  
*Winter 2022*

**INNOVATION**  
*At the Tactical Level*



# ARMOR

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# CHIEF OF ARMOR'S HATCH

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**BG Thomas M. Feltey**  
**Chief of Armor/Commandant**  
**U.S. Army Armor School**



## Special Winter Edition: Maneuver Warfighter Conference Thoughts

*"If we be, therefore, engaged by arguments to put trust in past experience, and make it the standard of our future judgment, these arguments must be probable only." -David Hume*

Welcome to this special edition of **ARMOR** for the winter of 2022. Over the last two editions, we focused on innovation within our branch. For the upcoming Maneuver Warfighter Conference, this edition focuses on tactical innovation across large-scale combat operations. Specifically, we want to highlight Armor Branch initiatives to aid discussion for a greater, Army-wide innovation effort during the conference. Taking both experience and future needs, we aim to provide relevant perspectives on how armor formations can better meet the demands of future combat. Following are some highlights for discussion at the Maneuver Warfighter Conference.

First, I am excited to announce that we will present our draft Armor training and leader development strategy to senior Armor leaders at the Maneuver Warfighter Conference. The **Armor Standardization and Training Strategy 2035** presentation will offer points of discussion focused on improving our training and leader-development

systems across Armor branch. Ultimately we want to provide a standardized approach and rigor to existing standards while filling in the training gaps between Integrated Weapons Training Strategy iterations at gunneries. Collectively these two efforts will increase our platform expertise and lethality. Our goal is to garner feedback from senior leaders at the Maneuver Warfighter Conference, refine our ideas and present a revised strategy at the Sullivan Cup in May for further feedback.

Secondly, we are analyzing potential changes in armored brigades. As the Army transitions to divisions as the unit of action, we are looking at ways to tailor our armor brigades to meet future demands. To that end, our 19C initiative is currently at Headquarters Department of the Army for decision, and we could see a change to combined arms warfare at the company level. Over the past eight months, we assisted the Combined Arms Center by conducting tabletop exercises and simulations to test other armored-brigade formations. These exercises looked across the doctrine, organization, training, materiel, leadership and

education, personnel and facilities, or DOTMLPF, spectrum to determine the impacts of anticipated future technology on doctrine, organizations and training.

Lastly, there continues to be much discussion on the role of cavalry squadrons, especially as we look at ways to use robotics and autonomous vehicles in the future. Our goal from these discussions is to further refine our sight picture on employment from both an organizational perspective and a technological perspective.

I hope your teams are preparing for the 2022 Sullivan Cup. The U.S. Army Armor School sent invitations to all armored and mechanized divisions and several foreign partners/allies for observation. I look forward to seeing your crews compete in the coming months.

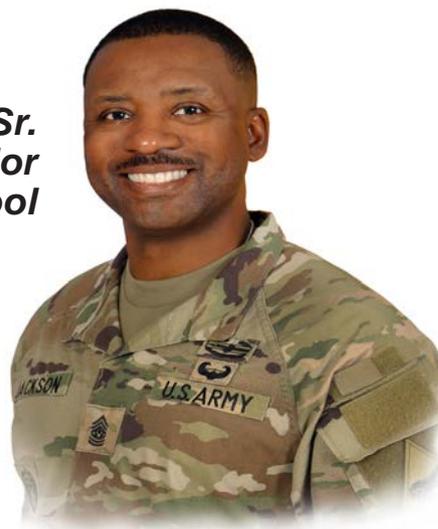
Please take some time to read through this collection of new and previously published articles, and provide us your thoughts as we begin to formulate our way toward 2035. I look forward to seeing you digitally or in person at the Maneuver Warfighter Conference!

**Treat 'em Rough!**

# GUNNER'S SEAT

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**CSM Levares J. Jackson Sr.**  
**Command Sergeant Major**  
**U.S. Army Armor School**



## Building to Mastery

Team,

I would like to thank CSM Tony and Nicole T. Towns for their warm welcoming and transition as both Katina and I step into the gunner's seat as the command sergeant major of the U.S. Army Armor School. CSM Towns impacted the Armor and Cavalry community during his tenure by championing/educating the force on the year/month available and the Assignment Satisfaction Key-Enlisted Module. His efforts allowed our enlisted Soldiers more control over their careers, spearheading initiatives that ensure the noncommissioned-officer corps' role in driving organizational change. We would like to send him and Nicole off with our best wishes as they start the next chapter of their lives. Stay blessed and safe!

As I reflect upon my career, I am humbled and reminded daily of the many leaders and Soldiers that enabled me to reach my current objective. Like

many of you, my list is pages long: officers, NCOs and civilians. Looking at our current cohort of NCOs and junior-enlisted Soldiers, I believe it is paramount that we view those within the Armor and Cavalry community as ***the weapon system that delivers brigade combat team lethality***. My mission as the Armor School's CSM remains nested with that of the Chief of Armor/commandant, BG Feltey. That mission is: ***placing people first, enabling the evolution of the combined-arms fight, building and maintaining readiness, and putting our Armor and Cavalry Soldiers in a position of relative advantage over our adversaries.***

I will use the Gunner's Seat column to share information on all the Chief of Armor's initiatives as we drive to build the mastering of our Armor/Cavalry Soldier and trooper to succeed well beyond 2035 while always soliciting feedback from the operational force.

In closing, I want you all to know that

my door and line is always open to you. Your counsel and recommendations to help ensure that our Soldiers and troopers maintain a tactical and technical advantage is important in building mastery, all while holding the line that dates back to 1778 at Valley Forge when Inspector Friedrich von Steuben standardized NCO duties and responsibilities for the Army NCO Corps, which he based of the competence of leaders who were hand-chosen to be the first sergeants in the Continental Army.

Thank you for your continued commitment to our Army, and thank you for your current and future investment in our Armor and Cavalry Soldiers.

**Armor Ready! Forge the Thunderbolt!**

# LETTERS

## Dear Editor,

I would like to offer a supplement to the excellent article entitled “The Russian Army and Maneuver Defense” by Dr. Lester W. Grau and Charles K. Bartles that appeared in the Spring 2021 edition of **ARMOR**. The Russian maneuver defense is actually a highly structured form of the delay. As such, there needs to be an effective counter rather than the classic time-consuming and costly “stop, deploy and assault.”

When we analyze the Russian intention for this form of maneuver, it becomes clear that they desire us to take time to deploy and then take casualties in an assault. Doing so means we play into their hands so they can delay and attrit our forces up to the point of them becoming decisively engaged, and then they withdraw by alternate bounds (at the battalion level) to subsequent positions, where we and they will repeat the sequence.

We need to prevent that sequence, which favors the Russian defense, by minimizing the delay and avoiding the assault while flanking their defensive positions to get into their depth before they can finish their withdrawal – or at least attrit their forces as they withdraw and are vulnerable. What is the answer? Unmanned aerial vehicle (UAV) scouts and massed fires.

When we encounter their platoon/company defensive positions, instead of deploying for an assault, we pause while our UAV scouts confirm the size and depth of their position(s). We then quickly use our already prepared defense templates to determine the most likely associated company/battalion defense positions, send our UAV scouts to confirm those locations, and then

bring massed fires onto not only the position(s) we have encountered but onto their associated positions as well. The aim is to attrit their forces using massed fires instead of them attriting our forces defending against our assault.

While we are attriting their forces using massed fires, we maneuver through gaps and/or around their flanks (as discovered by our UAV scouts) to disrupt their withdrawal by massing fires on their withdrawal route(s) in conjunction with “attack by fire” using our organic direct-fire weapons from Abrams and Bradley vehicles. The original Russian positions encountered can be dealt with by our follow-on forces with more massed fires, in conjunction with a final assault against an attrited and demoralized force. In this way we seize the initiative from them, attrit their forces and interrupt their delay and withdrawal timetable.

This requires or long-standing offensive mindset that fires support the assault be changed to massed fires are the assault. This will save precious troop lives (remember the American public’s intense aversion to “body bags” being shown in the media), attrit their forces and disrupt their timetable.

**LTC (RETIRED) ROBERT T. PANDOLFO**

## Dear Editor,

While looking through the on-line library, SCRIBD, for info on M4 Sherman tank manuals, I found **ARMOR**’s review of the book **M4 Sherman** by French author Michele Esteve (Spring 2021 edition). I was stunned to read that the review stated the book was “[a] superbly organized, well-written,

detailed history of the Sherman tank with hundreds of photos and diagrams included.”

I purchased a copy of this book and found it to be extremely disorganized to the point of almost being unusable without repeated flipping through the book to find something. I would suggest that if you have not done a really deep dive on this book, you might want to take a second look and consider retracting that glowing endorsement of it. I, too, initially thought this was going to be an excellent resource, but the closer I looked, the more I realized it has serious flaws on almost every page.

I am going through the book, page-by-page, detailing the problems found and trying to research corrections so that the book is not a total waste for my reference library. I am only on Page 21 and have almost 10 pages of notes about problems found.

**RONALD LEWIS**

*(Editor’s note: This would be a good time to explain **ARMOR**’s review procedures. A book’s usefulness and organization is a subjective matter, so readers may also wish to consult other on-line reviews before forming an opinion on a book. We welcome letters to the editor, but we won’t publish letters that attack our reviewers. We also don’t “retract” reviews, as they are our reviewers’ opinions. We don’t/can’t review novels per regulatory restrictions. Any questions? Please let us know.)*

## ACRONYM QUICK-SCAN

**UAV** – unmanned aerial vehicle

# Geronimo, Rakkasans and Robots: How Joint Readiness Training Center Rotation 21-10 Accelerated the Army's Robotic Combat Vehicle Development

by MAJ Cory Wallace, MAJ Dan Groller and Todd J. Willert

For the first time in history, the Army integrated Robotic Combat Vehicle (RCV) surrogates into a force-on-force exercise that will add to the growing body of evidence supporting the value of the manned-unmanned teaming concept.

The exercise, Joint Readiness Training Center (JRTC) Rotation 21-10, held in September 2021 at Fort Polk, LA, collected an unprecedented amount of technical data and Soldier feedback that will inform future decisions regarding the potential fielding and use of RCVs in Army formations.

The information gained in the exercise will also help reduce the associated technical risk of RCVs.

This experiment specifically confirmed that unmanned vehicles increase survivability of the human formation and allow commanders to dedicate human combat power to solve complex problems while unmanned vehicles perform tasks such as blocking key road intersections, observing obstacles and denying access to helicopter landing zones.

## Lessons-learned

The rotation used two Project Origin platforms that 1<sup>st</sup> Battalion (Airborne), 509<sup>th</sup> Infantry (Geronimo), employed while “fighting” 3/101<sup>st</sup> (Air Assault) (Rakkasans) during JRTC Rotation 21-10. The Next-Generation Combat Vehicles Cross-Functional Team (NGCV-CFT) and the Army Capability Manager-Infantry Brigade Combat Team had directed integration of two Project Origin platforms into Rotation 21-10, realizing that JRTC offered a complex and dynamic environment that would push current technology and unmanned ground-system behavior beyond limits established in previous experiments.

In other words, JRTC would stress systems to their breaking points and identify problems that would undoubtedly arise in the future.

As previously mentioned, Rotation 21-10 was the first time a rotational unit fought enemy unmanned ground-combat vehicles. Equipping Geronimo with RCV surrogates enabled the Army to begin to understand the tactics, techniques and procedures (TTPs) required to defeat robotic and autonomous systems (RASs).

Allowing a world-class opposing force (OPFOR) to push robotic platforms to their limits enabled the Army to learn critical lessons that will shape and inform RCV platform requirements, software and network capabilities. It will also help develop new TTPs to employ unmanned platforms.

Speaking to the first benefit, the Army confirmed a previous data point that system reliability and the ability to facilitate future payloads should be the near-term focus for developing RASs such as the RCV. For Rotation 21-10, Project Origin provided operators with capabilities such as a Common Remote Operated Weapon System-Javelin, a tethered unmanned aerial system (UAS), a smoke-obscuration module and autonomous-drive capability.

This capability set is a reduction of scope when compared to previous experiments, but operators and leaders stated that these capabilities, coupled with high system and network reliability, is perfect for “Version 1.0.” Soldiers agreed that future operating environments will require mission-specific payloads; accordingly, the RCV must have both the growth and modularity to facilitate these future capabilities.

Soldiers and team leaders who used Project Origin in the rotation validated the benefits of bringing an RCV into the fight.

1LT Michael Volpe, a platoon leader in Pathfinder Company/1-509<sup>th</sup>, said that coupling system reliability with Project Origin's current capability set – as well as including the inherent capacity for future growth and development of RCV platforms – “will be one of the best things we could ever have.”

JRTC Rotation 21-10 tested the Project Origin system in multiple ways – just as the vehicle's engineering team hoped. Not only did Project Origin have to contend with the



Figure 1. The RCV in position at JRTC for Rotation 21-10. (U.S. Army photo)

## Project Origin

The Project Origin surrogate is an Army Development Command Ground Vehicle Systems Center prototyping effort that provides the Army with the ability to conduct rapid technology and autonomous-behavior integration. Soldiers assess the project during multiple touchpoints each year and thus drive development and refinement of RCV requirements, employment techniques and mission-support roles.

Ultimately Project Origin is one of several feedback mechanisms the Army is using to facilitate the development of unmanned vehicles tailored to the requirements of both operators and leaders.

Project Origin's key competency is its ability to collect Soldier feedback and technical data; use this information to rapidly iterate both its software and physical payloads; and evaluate the changes in relevant tactical environments. The lessons-learned during Project Origin experiments directly support development of the RCV concept and the Army's forthcoming ground autonomy software, user interfaces (Warrior Machine Interface) and modular architectures.

communications challenges presented by JRTC's congested network during the rotation, but a tropical storm hit Fort Polk while the Soldiers and robots were out in the field. Both the network challenges and the extreme weather enabled the Army to identify new problems for which the Army has the luxury of time to solve.

## Previous experiments

Prior to Rotation 21-10, Project Origin's experiments hinged upon a scope and scale that rarely exceeded the platoon level. Network congestion was rarely an issue. Weather challenges – while clearly a part of any potential combat scenario – had not been present in previous Soldier touchpoints.

JRTC's expansive scope identified the same issues the Army will encounter in future large-scale robotic experiments. Project Origin requires very little resources and thus enabled the Army to learn these lessons for a fraction of the cost associated with larger-scale experiments. Further, many of the issues encountered at JRTC pertained to the systems' software and are relevant to other RAS efforts. Identifying these problems using a relatively low-cost system such as Project Origin will enable the Army to correct software deficiencies and distribute updated software throughout the RAS portfolio to optimize RAS performance in complex.

Operators and leaders know that adversaries will contest and degrade future networks. Therefore, facing those challenges now in a training rotation is critical to the advancement of RCV employment. As with any mission, being able to disseminate information rapidly throughout a formation is imperative for leaders to make informed decisions and remain inside their adversaries' decision process.

Learning how best to do that with robots in a degraded network environment is a key part of both the RCV campaign of learning and future Army operating concepts. JRTC Rotation 21-10 enabled the Army to learn these vital lessons early and will provide DEVCOM with the time required to develop solutions prior to the Army's arrival at its 2035 modernization aim point.

## Robot tasks

Regarding use

cases, this rotation validated the notation that robots can perform the "dumb, dirty and dangerous missions," enabling their human counterparts to focus on high-priority complex missions and tasks. Specifically, Geronimo tasked Project Origin with establishing blocking positions, denying helicopter-landing zones (HLZs) and conducting route reconnaissance when contact with the rotational unit was likely.

Project Origin established a blocking position of a key intersection for 36 hours. Two platforms, controlled by four operators and a noncommissioned officer, allowed Geronimo to re-task the two squads previously committed to a blocking position to other tasks.

Project Origin also conducted a route reconnaissance prior to Geronimo's attack on an urban objective. The robots identified an entire Delta (anti-armor) Company and facilitated its destruction in a fraction of the time typically required with such an operation.



Figure 2. An RCV focuses on a UAS during JRTC Rotation 21-20. (U.S. Army photo)

While conducting HLZ denial, Project Origin enabled Geronimo to disrupt the rotational unit's planned course of action and degrade its combat power at the same fraction of combat power required to establish the blocking positions.

To summarize, Geronimo learned that if a task was dangerous or required hours of mundane observation, they could pass the task to a robot so they could focus human combat power on dynamic and complex missions and reduce tactical risk.

Further expanding on this point, Geronimo has a unique skillset that involves a high degree of proficiency in conducting dismounted envelopments at night. The skills required to covertly and rapidly move through dense vegetation at night, identify a position of relative advantage and coordinate indirect fire to support dismounted maneuver is a complex and difficult problem. The amount of abstract thinking associated with this skillset aligns more with the supercomputer known as the human brain, as opposed to a robot.

Conversely, establishing blocking positions, making initial direct-fire contact during a route reconnaissance or observing potential enemy avenues are tasks better performed by robots because robots do not get tired, robots do not lose focus and robots do not bleed. Off-loading mundane and dangerous tasks onto robots allowed

Geronimo to amplify the effects of its skillset by augmenting decisive operations with more humans who would otherwise be blocking road intersections or facing increased risk and potentially high casualty rates while conducting route reconnaissance.

## Increased human survivability

Regarding tactical risk, Project Origin continues to demonstrate that unmanned systems increase Soldier survivability through the use of telepresence. Geronimo was able to effectively operate the Project Origin systems at a distance and produce many of the same operational results with a fraction of the typical casualties.

"With these units, the human survivability rate increases significantly," explained SFC Eugene Lackey (Pathfinder Company). "This system allowed us to close with and destroy the enemy safely from a distance. It [also enabled] us to find the enemy before he could find us. It is a great tool, and I wish we could have it for little bit longer to really see how we can change the way wars are fought."

Project Origin will continue to develop the future of unmanned systems through the voice of the Soldier to facilitate the integration of unmanned systems into the Army.

JRTC Rotation 21-10 was a historic landmark in the Army's RCV campaign of learning. The feedback from

Geronimo Soldiers and leaders, coupled with the terabytes of technical data, provided the Army with a multifaceted body of knowledge. The JRTC "acid test" identified issues that would potentially have gone unnoticed until larger experiments occurred, scheduled to begin in July 2022.

The Army now has the opportunity to address these issues and provide future operators with reliable and effective equipment capable of achieving the Army's 2035 modernization goals. Further, Project Origin and Geronimo provided the Army with a preview of future operating environments so that the Army can understand how to fight and win in these environments during peacetime, as opposed to developing these concepts during a time of conflict.

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**Figure 3. A project officer talks with Soldiers at Fort Polk about the RCV. Soldier feedback is vital to Project Origin. (U.S. Army photo)**

Barracks, HI; and aide-de-camp to the deputy commanding general, 1<sup>st</sup> Armored Division, Wiesbaden, Germany. MAJ Groller holds a master's of arts degree in business and organizational-security management from Webster University. His awards and honors include two Bronze Star Medals, four Meritorious Service Medals, 2015 General Douglas MacArthur Leadership Award and Order of Saint George Bronze Medal. MAJ Groller was recently selected for an interservice transfer to the Space Force as an acquisition professional.

Todd Willert, a retired Special Forces major (NH3), is project manager for the Origin program, GVSC (ground-vehicle robotics) at Detroit Arsenal, Warren, MI. He leads a team of government engineers and industry partners

to integrate new technology and autonomous behaviors onto an unmanned system and to conduct Soldier operational experiments across the Army. Previous jobs include science and technology adviser, GVSC, Detroit Arsenal; assistant product manager, man-transportable robotic systems, Selfridge Air National Guard Base, MI; chief, Soldier Systems Branch, U.S. Army Special Forces Command, Fort Bragg, NC; and commander, Special Forces Detachment, Fort Bragg. He has a bachelor's of science degree in health science from Campbell University and a master's of arts degree in procurement and acquisition management. His awards and honors include the Bronze Star Medal (two OLCs) and Meritorious Service Medal (six OLCs).

## ACRONYM QUICK-SCAN

**DEVCOM** – Development Command  
**GVSC** – Ground Vehicle Systems Center  
**HLZ** – helicopter-landing zone  
**JRTC** – Joint Readiness Training Center  
**NGCV-CFT** – Next-Generation Combat Vehicles Cross-Functional Team  
**OLC** – oak-leaf cluster  
**RAS** – robotic and autonomous system  
**RCV** – Robotic Combat Vehicle  
**TTP** – tactics, techniques and procedure



## Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

**KERR, THOMAS R. CPT**  
 Unit: Company C, 14th Pennsylvania Cavalry. Place and date of action: Moorfield, WV, Aug. 7, 1864. Entered service: Pittsburgh, Pa. Born: April 24, 1843, Ireland. Date of issue: June 13, 1894. Citation: After being most desperately wounded, he captured the colors of 8th Virginia Cavalry (CSA).

**KIMBALL, JOSEPH PVT**  
 Unit: Company B, 2nd West Virginia Cavalry. Place and date of action: Sailors Creek, VA, April 6, 1865. Entered service: Ironton, OH. Born: Littleton, NH. Date of issue: May 3, 1865. Citation: Capture of flag of 6th North Carolina Infantry (CSA).

**KUDER, ANDREW 2LT**  
 Unit: Company G, 8th New York Cavalry. Place and date of action: Waynesboro, VA, March 2, 1865. Born: Groveland, NY. Date of issue: March 26, 1865. Citation: Capture of flag.

**LADD, GEORGE PVT**  
 Unit: Company H, 22nd New York Cavalry. Place and date of action: Waynesboro, VA, March 2, 1865. Entered service: Carmillus, Onondaga County, NY. Born: Carmillus, NY. Date of issue: March 26, 1865. Citation: Captured a standard bearer, his flag, horse and equipment.

**LANDIS, JAMES P.**  
 Rank and unit: Chief bugler, 1st Pennsylvania Cavalry. Place and date of action: Paines Crossroads, VA, April 5, 1865. Born: Mifflin County, PA. Date of issue: May 3, 1865. Citation: Capture of flag.

**LANFARE, AARON S. 1LT**  
 Unit: Company B, 1st Connecticut Cavalry. Place and date of action: Sailors Creek, VA, April 6, 1865. Entered service: Branford, CT. Born: Branford, CT. Date of issue: May 3, 1865. Citation: Capture of flag of 11th Florida Infantry (CSA).

# Robots on Tracks:

## What Armor Needs to Make Robotic Combat Vehicles Work

by MAJ John Nimmons and  
2LT Patrick Oathout

One of America's most significant retreats of World War II occurred at the Battle of Kasserine Pass.<sup>1</sup> In early 1943, the U.S. II Corps faced Nazi Germany's GEN Erwin Rommel's Afrika Korps and two divisions from the Fifth Panzer Army at the Battle of Kasserine Pass in Tunisia. This battle was the first opportunity for American troops to test tanks, close air support and anti-tank weapons together in combat.<sup>2</sup>

Despite the inclusion of new technology, the United States lost the battle for several reasons. First, the distribution of American forces across different Allied units – as well as the II Corps headquarters' location 70 miles from the front – created poor command and control (C2). Second, Americans were inexperienced in many ways; namely, Soldiers lacked training and experience employing their new weapons. Finally, Americans could not mass and synchronize ground-air operations, negating the value of new fighters, tanks and artillery.

U.S. forces needed significant doctrinal, organizational and leadership changes to increase the effectiveness of their new weapons and equipment. As a result, during a four-month period, U.S. GEN Dwight Eisenhower replaced senior leaders and initiated reforms to better synchronize new technology with organizations and doctrinal employment. Eventually these changes came together at the end of the Tunisian Campaign, demonstrating the value of synchronizing new technology with compatible doctrine, organization and training. Kasserine Pass taught the United States many lessons, but most importantly, it accelerated the shift to a modern concept of combined-arms combat.<sup>3</sup>

Today the U.S. Army faces similar challenges synchronizing newly developed robotically controlled vehicles (RCVs). The speed, depth and range of combat operations continues to grow. However, unlike World War II, the time

available to incorporate needed doctrinal and organizational changes during combat operations is limited.

Recent events in the Nagorno-Karabakh conflict between Armenia and Azerbaijan show the same challenges. Azerbaijan's modern weapons paired with a synchronized, innovative doctrine of employment brought a quick, decisive end to the conflict before Armenia could adapt to make necessary changes during combat operations.<sup>4</sup>

As recent conflicts show, potentially paradigm-changing technology will change the nature and scope of future military operations, directly impacting how the U.S. Army employs RCVs. While these autonomous tanks provide many advantages, Armor does not yet have the doctrine, organization and training to enable their use effectively. Paul Scharre warned of this hurdle in his book on autonomous weapons, *Army of None*: "With proper design, testing and use, autonomous systems can often perform tasks far better than humans. ... However, if they are placed into situations for which they were not designed, if they aren't fully tested, if operators aren't fully trained, or if the environment changes, then autonomous systems can fail."<sup>5</sup>

Thus, as we look at the impact of RCVs on armor formations in the future, we should consider the following doctrinal, organizational and training changes:

- Consider alternative organizational constructs for RCVs through disaggregated testing at lower echelons;
- Establish a new military-occupation specialty (MOS) that will operate and sustain RCVs; and
- Prioritize digital skills in Armor recruitment and training.

The U.S. Army released its *Robotic and Autonomous Systems Strategy* in 2017, outlining near-, mid- and far-term priorities. The strategy stated that RCVs will increase situational

awareness, lighten Soldiers' physical and cognitive workloads, sustain the force better, facilitate movement and maneuver and protect the force.<sup>6</sup> To enable this strategy, the Army is currently developing three RCV platforms. These platforms serve different purposes; some RCVs will reconnoiter independently, while others will move alongside human-operated tanks.<sup>7</sup>

Overall, RCVs are quicker and cheaper to produce, increase survivability and perform missions that would challenge even the most experienced armored unit.<sup>8</sup> The U.S. Army recognizes these advantages, and so do near-peer threats. China and Russia are both developing RCV platforms, with the latter testing them in Syria in 2018.<sup>9</sup>

Like the addition of new technology in World War II, RCVs will present initial challenges to sustainment, operational tempo and C2. Small materiel changes at lower echelons can create enormous cascading effects across an organization, especially if there is no overarching doctrine guiding usage. P.W. Singer wrote in his book, *Wired for War*, "The best parallel [to the development of autonomous weapons] might be the difficulties the Army had before World War II at integrating tanks into its plans and operations, especially when it was led by 'leaders not able to think beyond their [World War I] war experiences, where the pace of war was at a two-and-a-half-mile-an-hour clip.'"<sup>10</sup>

War is now much faster and more complex than World War II, and autonomous weapons will increase this trend. These challenges will severely limit any in-stride adaptation the U.S. Army may need in future conflicts if not addressed.

### Organizing RCVs in formations

The organizational construct of RCVs is fundamental to the efficacy of the program. As Christian Brose described in *The Kill Chain*, the addition of technology alone will not guarantee



**Figure 1. The RCV-Light can be equipped with a tethered unmanned aerial system, a small drone that can be deployed to conduct aerial reconnaissance while the vehicle is at a safe distance. Other equipment to be tested on the RCV-Light experimental prototype includes the M153 Common Remotely Operated Weapons Station II (CROWS II), the .50 caliber M2 machinegun and the 40mm MK19 Mod 3 automatic grenade launcher. (Photo by Bruce Huffman, Michigan National Guard)**

success in future conflicts.<sup>11</sup> In this early stage of testing, it is essential to consider all forms of robotic usage and not limit their organizational designs to military structures of the past.

Proposed RCV organizations currently focus on adding robot-only companies to armored brigades or battalions, where one person commands the robotic unit's action at the direction of higher commanders.<sup>12</sup> The idea here is to empower brigade and battalion commanders to use RCVs as whole units or task-organize them into smaller formations as the mission requires. As observed with Russia's 2018 use of RCVs in Syria, RCVs are still unreliable due to software, mechanical and networking issues: They stall and lose connection, requiring human intervention to continue.<sup>13</sup>

Learning from this lesson, it is likely that these issues will persist in the future, making these systems targetable by adversaries. If coalesced into larger formations, RCVs are vulnerable to single points of failure. Scharre wrote in *The Army of None* that "[t]he key factor to assess with autonomous weapons isn't whether the system is better than a human, but rather if the system fails (which it inevitably will), what is the amount of damage it could cause, and can we live with that risk?"<sup>14</sup> As such, the design of RCV organizations should exploit their advantages and mitigate their inevitable failures.

As we continue to test appropriate organizational integration methods, an alternative to company-sized RCV formations at battalion and brigade levels is disaggregating them as pairs of systems across company and platoon formations. There are a couple reasons to consider this alternative organizational construct: increased adaptability and maintenance responsiveness.

First, allocating RCVs to lower echelons below brigade and battalion will decentralize decision-making for RCV employment, creating opportunities for adaptability in dynamic environments. Distributing ownership across lower echelons will also distribute the risk of technological failure – if one unit's RCVs fail during combat, most others can succeed. Scharre wrote, "One of the ways to compensate for the brittle nature of automated systems is to retain tight control over their operation. If the system fails, humans can rapidly intervene to correct it or halt its operation."<sup>15</sup> It is easier to maintain tight control among operators and RCVs in decentralized organizations vs. having them aggregated and controlled at higher echelons.

First, decentralizing control of RCVs flattens the formation, leveraging dynamic decisions at lower levels rather than filtered decisions complicated by multiple levels of staff and command. Given the anticipated speed of future

conflicts, decentralized decision-making for RCVs negates a common failure observed in hierarchical systems, namely the timeliness of actions where one person, the commander, ultimately controls the direction and action of a larger formation.<sup>16</sup> When examined at a greater level, multiple systems working independently to achieve a unified effect on enemy forces is the very definition of mission-command principles, namely disciplined initiative.<sup>17</sup>

This change is in keeping with existing doctrine, but the nuanced change to combined-arms warfare enables units to maintain operational tempo without depending on the success or failure of larger RCV formations. Ideally we want formations with new technology to adapt quickly as battlefield parameters change, much like when Sun Tzu stated, "Water shapes its course according to the nature of the ground over which it flows; the soldier works out his victory in relation to the foe whom he is facing."<sup>18</sup> In this case, decentralizing control of RCVs provides "better, faster and more adaptable kill chains ... [that] act more effectively under highly dynamic conditions than our opponents."<sup>19</sup>

A second reason to pursue dispersed, decentralized robotics organizations is increased maintenance responsiveness. Placing company-sized RCV formations in brigades may reduce maintenance manning requirements, but this centralized method may not provide adequate support during combat operations. Current Next-Generation Automatic Test System (NGATS) and Direct-Support Electrical Systems Test Set (DSESTS) systems and organizational structure within armored brigade-support battalions (BSB) require a select few integrated family of test-equipment operator/maintainers (94Ys) to conduct all computer repairs, sometimes creating repair wait times that are unsustainable during combat or training operations.

This centralized repair system creates a bottleneck within large formations and lacks dynamic self-repair and diagnostic troubleshooting needed to maintain operational tempo. Instead, a consideration when disaggregating RCVs is to place maintainers closer in

proximity to the formations they will supplement for quicker repair solutions should problems arise. In this early stage for RCVs, each forward-support company will need individuals for diagnostic troubleshooting and mechanical RCV maintenance capability, particularly if the RCV platform is not expendable. Placing operators and maintainers physically closer to RCVs on the battlefield enables increased maintenance flexibility to keep these systems in the fight.

## Training RCV operators/maintainers

As the Army increases the number of RCVs in its formations, its Soldiers must increase their expertise with those systems. Over time, as the Armor Branch incorporates RCVs, the operators will need a new 19 Career Management Field MOS: tech-savvy Soldiers who control weapons and many digital systems in tandem with manned equipment. RCVs and updates to the next-generation combat tank will require digitally literate operators, representing another challenge for the Armor Branch. It is important to note that RCVs and tanks are not just vehicular combat platforms – they are now also highly technical computer systems. As a result, RCVs and the next-generation combat tank will require crews with an increased understanding of electronic warfare, digital-systems maintenance and artificial intelligence (AI)/machine learning.

Robotics crews must understand electronic warfare, as these attacks will proliferate in future combat. Friendly RCVs will electronically attack an enemy to jam communications or mask the movement of friendly forces. In turn, friendly RCVs may also jam and need live maintenance to get back into the battle. Soldiers deploying and defending against electronic attacks will need a masterful understanding of this discipline to be lethal, akin to the development of master gunners today.

Secondly, RCVs crews must be proficient in digital sustainment and maintenance. As LTG Gary M. Brito wrote recently, “The future operating environment will require Army forces to operate dispersed with the ability to concentrate combat power rapidly at

decisive points and in spaces (domains) to achieve operational objectives.”<sup>20</sup>

RCVs will lose effectiveness if they lack the digital maintenance personnel to solve issues on the battlefield. Armored crews presently lack the digital expertise to troubleshoot computer issues on their vehicles, requiring NGATS/DSESTS teams in the BSB to fix all computer-related issues. The current sustainment structure within brigades will not support the addition of RCVs and digital upgrades for next-generation combat vehicles. The limited number of 94Ys that currently exist within a brigade would struggle to sustain the increased digital requirements that come with RCVs. Tank systems will need troubleshooting – fixing a tank’s network connection might be as common as replacing a tank’s tracks. Soldiers will need to understand networking, cloud computing, cybersecurity and more to manage digital systems.

Finally, these robotics crewmembers must be proficient in informing and guiding AI. AI is already informing RCVs at Project Convergence,<sup>21</sup> the Army’s effort to establish joint integration of technology-enabled battlefield insights and C2.<sup>22</sup> While combat

Soldiers will not need the requisite knowledge to build and test AI and machine-learning tools, they will need to understand how these programs gather data and arrive at conclusions to set the technology up for success in battle.

Mike Horowitz, a political-science professor at the University of Pennsylvania, wrote, “If human operators, whether in a command center or on the battlefield, do not know exactly what an AI will do in a given situation, it could complicate planning, making operations more difficult and accidents more likely. ... If an AI system behaves a certain way in classifying an image or avoiding adversary radars, but cannot output why it made a particular choice, humans may be less likely to trust it.”<sup>23</sup> Soldiers need to understand the strengths and limits of the technology they use. Otherwise, they risk overusing or underusing these assets, lessening the potential effect of AI on the battlefield.

## Training, recruiting digital experts

These trends all underline the need for empowered, digitally knowledgeable experts at the point of immediate action. Digital expertise is not built



**Figure 2. The Ripsaw, the fourth and final RCV (RCV-Medium) prototype, was delivered to CCDC’s GVSC at Detroit Arsenal, MI, May 13, 2021. (Photo copyright Textron Systems; property of Textron Systems. This photo should not be reused, reproduced in any form or any channel, or provided to any other party without the express written permission of Textron Systems)**

overnight, and thus future recruitment efforts should focus on attracting Soldiers who understand basic electronic and software engineering. Armor should incorporate these skills into its program of instruction at all basic courses and provide Army-funded opportunities to earn external micro-degrees in software development, cybersecurity, networking, geospatial intelligence, data science and machine learning.

Developing Soldiers' technological literacy would not only make us a more capable and lethal branch, but it would also improve the Armor Branch's attractiveness to recruits. Based on collected feedback, when Armor loses a candidate, it is often because the branch does not offer the same post-Army career prospects as others. These training changes would make Armor Branch more competitive by providing professional-development opportunities that translate beyond the typical Army career path. In addition to training changes, Armor will also need to revise its recruitment strategy to recruit from organizations producing tech-literate teenagers, like the local high-school robotics club, and update its target knowledge, skills and behaviors. Therefore, the Armor Branch should screen recruits on these technical skills and try to attract the best technical talent to maintain lethality in the 21<sup>st</sup> Century.

The U.S. Army emerged from World War II with more insight on the power of combining new technology with new doctrine, organization and training. The U.S. Army learned from Kasserine Pass that technology alone was not enough; units needed to better synchronize their actions across echelons and branches. In an effort to not repeat lessons-learned half a century ago, we can get ahead of doctrinal, organizational and training challenges now if we examine more ways to test RCV employment in armored units today. It should be noted that technological changes alone cannot be shoehorned into doctrine and organizations. Iterative experimentation at echelon will inform the requirements that new technology will create.

## Changing warfare

Robots and AI will change warfare, and the U.S. Army can harness the talent and resources to develop the best technology. But no amount of innovation will win wars if the force is not making the correct doctrinal, organizational and training changes. Therefore it is better to experiment early (now) and succeed rather than fail to understand future parameters until experimentation is forced to occur at the cost of life during combat operations.

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## Notes

<sup>1</sup> Stephan Wilkinson, "What We Learned from the Kasserine Pass"; **Military History**; July 2012; <https://www.historynet.com/learned-kasserine-pass.htm>.

<sup>2</sup> Martin Blumenson, "Kasserine Pass, 30 January-22 February 1943," **America's First Battles, 1776-1965**; Lawrence, KS: University Press of Kansas; 1986.

<sup>3</sup> Ibid.

<sup>4</sup> BG Thomas M. Feltey, "Chief of Armor Hatch: Enabling the Evolution of the Combined-Arms Fight"; **ARMOR**, Summer 2021.

<sup>5</sup> Paul Scharre, "Robots Run Amok – Failure in Autonomous Systems"; **Army of None**, New York, NY: W.W. Norton & Company; 2018.

<sup>6</sup> Maneuver, Aviation and Soldier Division, Army Capabilities Integration Center; **U.S. Army's Robotic and Autonomous Systems Strategy**; Fort Eustis, VA: U.S. Army Training and Doctrine Command; 2017.

<sup>7</sup> Sydney J. Freedberg, "Meet the Army's Future Family of Robot Tanks: RCV"; **Breaking Defense**; Nov. 9, 2020; <https://breakingdefense.com/2020/11/meet-the-armys-future-family-of-robot-tanks-rcv>.

<sup>8</sup> Scharre.

<sup>9</sup> Kyle Mizokami, "The Army's Robotic Combat Vehicles Will Invoke WWII's 'Ghost Army'"; **Popular Mechanics**; Aug. 3, 2021; <https://www.popularmechanics.com/military/weapons/a37202757/army-robotic-combat-vehicles-ghost-army>.

<sup>10</sup> P.W. Singer, "'Advanced' Warfare: How We Might Fight with Robots"; **Wired for War**; New York, NY: Penguin Books; 2009.

<sup>11</sup> Christian Brose, **The Kill Chain: Defending America in the Future of High-Tech Warfare**; New York, NY: Hachette Books; 2021.

<sup>12</sup> The idea of adding robot-only companies to armored brigades or battalions is a discussion point across multiple Army organizations that look at modernization. These briefs and proposed ideas are still in the initial stages of conceptualization.

To date, most of these discussions only focus on the technical aspect of RCV additions and not necessarily the impact such an addition would require to modify existing organizations for better employment.

<sup>13</sup> Sebastien Roblin, "What Happened When Russia Tested Its Uran-9 Robot Tank in Syria?"; *The National Interest*; April 8, 2021; <https://nationalinterest.org/blog/reboot/what-happened-when-russia-tested-its-uran-9-robot-tank-syria-182143>.

<sup>14</sup> Scharre.

<sup>15</sup> Ibid.

<sup>16</sup> Yaneer Bar-Yam, *Making Things Work: Solving Complex Problems in a Complex World*; Cambridge, MA: Knowledge Press; 2004.

<sup>17</sup> Army Doctrine Publication 6-0, *Mission Command*; Headquarters Department of the Army; 2019.

<sup>18</sup> Sun Tzu, "Weak Points and Strong"; *The Art of War*, translated by Lionel Giles; Leicester, England: Allandale On-line Publishing; 2000; [https://sites.ualberta.ca/~enoch/Readings/The\\_Art\\_Of\\_War.pdf](https://sites.ualberta.ca/~enoch/Readings/The_Art_Of_War.pdf).

<sup>19</sup> Brose.

<sup>20</sup> LTG Gary M. Brito and Keith T. Boring, "Disrupted, Degraded, Denied, but Dominant: The Future Multi-Domain

Operational Environment"; *Deep Maneuver: Historical Case Studies of Maneuver in Large-Scale Combat Operations*, edited by Jack D. Kem; Fort Leavenworth, KS: Army University Press; 2018; <https://apps.dtic.mil/sti/pdfs/AD1120410.pdf>.

<sup>21</sup> Project Convergence is the U.S. Joint Force experiments with speed, range and decision dominance to achieve overmatch and inform the Joint Warfighting Concept and Joint All-Domain Command and Control. A campaign of learning, it leverages a series of joint, multi-domain engagements to integrate artificial intelligence, robotics and autonomy to improve battlefield situational awareness, connect sensors with shooters and accelerate the decision-making timeline.

<sup>22</sup> Maureena Thompson, "AI-Enabled Ground Combat Vehicles Demonstrate Agility and Synergy at PC21"; army.mil; Nov. 1, 2021; [https://www.army.mil/article/251632/ai\\_enabled\\_ground\\_combat\\_vehicles\\_demonstrate\\_agility\\_and\\_synergy\\_at\\_pc21](https://www.army.mil/article/251632/ai_enabled_ground_combat_vehicles_demonstrate_agility_and_synergy_at_pc21).

<sup>23</sup> Michael C. Horowitz, "The Promise and Peril of Military Applications of Artificial Intelligence"; *Bulletin of the Atomic Scientists*; April 23, 2018; <https://thebulletin.org/2018/04/the-promise-and-peril-of-military-applications-of-artificial-intelligence>.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**AI** – artificial intelligence  
**BSB** – brigade-support battalion  
**C2** – command and control  
**CCDC** – Combat-Capabilities Development Command  
**CIG** – commandant's initiatives group  
**DSESTS** – Direct-Support Electrical Systems Test Set  
**GVSC** – Ground Vehicle Systems Center  
**MCCC** – Maneuver Captain's Career Course  
**MOS** – military-occupation specialty  
**NGATS** – Next-Generation Automatic Test System  
**OIF** – Operation Iraqi Freedom  
**RCV** – robotically controlled vehicle

### Armored Fighting Vehicles of the World

#### ZTQ-15 (Type 15) "Black Panther" Light Tank

Chinese third-generation light tank, in service since 2018. Three-man crew. Weight is 33 tons. Main armament is a 105mm rifled gun (NATO-round compatible) with autoloader. Secondary armament is a remotely operated 12.7mm machinegun. Advanced composite armor and reactive armor blocks. In service with: Chinese PLA Army and Marine Corps. An export version, the VT-5, is in service with Bangladesh.

# Armored Assault Company:

## Increase Lethality with Platoon Expertise

by CPT Travis Hines

America Company, 1<sup>st</sup> Battalion, 29<sup>th</sup> Infantry Regiment, 316<sup>th</sup> Cavalry Brigade, demonstrated a new concept in July 2021 designed to change the Army's mounted formations: the armored assault company (AAC).

Testing concepts is not new for A/1-29 Infantry. This infantry company is the Army's experimental force (EXFOR), working with the Maneuver Center of Excellence (MCoE)'s Maneuver Battle Lab to test equipment prototypes and innovative concepts for modernization.

The EXFOR company is well-suited for the task of demonstrating the AAC concept with trained infantry and Bradley platoons, and providing critical feedback ahead of the AAC's incorporation by III Armored Corps this calendar year.

The Army consolidated the infantry military-occupation specialty (MOS) skill identifiers of 11M (mechanized infantryman) and 11H (anti-armor specialist) to 11B (infantryman) in 2001. Since this consolidation, the following objective observations of decreased lethality were seen at combat-training centers in Bradley crews:

- A decrease in overall target hits during the past 20 years;
- A requirement of more time for Bradley crews to qualify; and
- The first-run crew qualification rates were not to standard.<sup>1</sup>

Coupled with changing conditions and the focus on the Global War on Terrorism and shorter dwell times in armored units, the lethality decrease and loss of proficiency inside Bradley crews have continued.

Allowing Soldiers to develop as subject-matter experts in a specific career field eliminates the generic infantry Soldier who can perform many tasks at an average level, and instead develops that Soldier into an extremely lethal expert on a single platform. Each

infantry capability (light, mechanized, airborne, Ranger and air assault) brings a unique ability to the fight. Therefore, for maximum lethality, the Army should allow Soldier development inside each capability through relevant experiences during years of repetition.

### Lethality critical to success

Lethality is critical to mission success against a near-peer threat and a number overmatch. For example, a recent computer-simulated wargame between North Atlantic Treaty Organization (NATO) and Russian forces in the Baltics indicated a 1:4.6 NATO to Russian infantry fighting vehicle ratio.<sup>2</sup> The NATO numerical disadvantage must be overcome by technically proficient vehicle crews and tactically proficient dismounted-infantry Soldiers mutually supporting each other.

The creation of the AAC and the 19C MOS will increase lethality, creating a depth of experience for the noncommissioned officers (NCOs) on the Bradley Fighting Vehicle (BFV) and increasing knowledge on gunnery, maintenance and recovery. Soldiers with expertise on BFVs are not developed in

a week; they are created through repetition and codified during multiple assignments throughout an entire career.

**AAC task-organization.** Four platoons are broken into two infantry platoons and two BFV platoons. The infantry platoons have three nine-Soldier squads with a headquarters element that includes a platoon leader, platoon sergeant, radio-telephone operator (RTO), medic, one M240B machinegun team and a 60mm mortar section.

The BFV platoons have a driver, gunner, Bradley commander and a headquarters section with platoon leader, platoon sergeant and medic. Currently, there is no change of higher-echelon battalion and brigade task-organization. The U.S. Army Armor School and the U.S. Army Infantry School created this task-organization based on a zero-growth model – meaning the numbers inside the current formations remain the same.

The EXFOR conducted the AAC demonstration July 23, 2021, at Fort Benning, GA. Following are observations of the AAC as identified by Soldiers who participated in the initial concept demonstration.

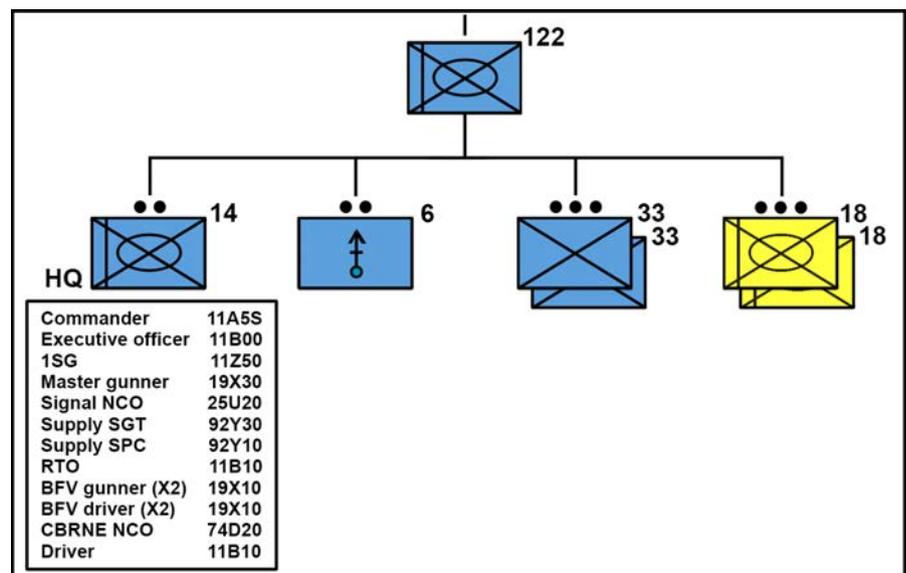


Figure 1. Proposed AAC task-organization (four platoons).

## Command and control

### Heavy planning at company level.

First, the EXFOR company completed BFV familiarization courses, ensuring all participating Soldiers were familiar with the platform. The company then conducted initial planning with rehearsals on the Augmented Reality Sand Table. This included preparation of company operations orders and a tactical exercise without troops before moving into platoon-level troop-leading procedures.

With four maneuver platoons operating simultaneously, command and control (C2) and creation of shared understanding is crucial. Planning at company level is essential. Therefore, company-level graphic-control measures (GCMs) were established to allow platoon-level leaders to understand their left/right limits and shift/lift fires. Using BFV platforms to maneuver and dismount the infantry as close to the objective as possible enabled speed, audacity and tempo, but it required a company leader to ensure a safe battlefield handover.

**Communicate across platoons.** Conducting operations with four platoons supporting each other required a heavy command presence. Radio communication was initially an issue due

to an insufficient frequency-modulation net architecture. BFVs are equipped with two Single-Channel Ground and Airborne Radio Systems radios for platoon and company nets, with a vehicular intercommunications system for internal crew communications.

When geographically separating the company between continuously paired infantry and Bradley platoons, the commander and “fighting” executive officer need command nets to coordinate and maneuver platoons. For the demonstration, the executive officer controlled 3<sup>rd</sup> and 4<sup>th</sup> Platoons from an alternate command net. In contrast, the commander controlled 1<sup>st</sup> and 2<sup>nd</sup> Platoons from the primary command net, allowing for switching back and forth between the primary and alternate net for situational awareness. Again, operating with four platoons supporting each other required heavy command presence.

In a normal mechanized and infantry company, the command net simultaneously sends information across all three platoons, creating situational awareness. However, in an AAC, one command net with four platoons sending critical information (shift-fire calls, cease-fire calls and key calls) will be overcrowded and will create delays

in tempo. Therefore, the necessity of two command nets with a key leader monitoring each is vital to the company’s and each platoon’s success on the battlefield. The key leader monitoring each net (commander or executive officer) will clarify the “who is in charge” question with two platoon leaders who are performing a tactical task on an objective against a near-peer adversary.

## Movement and maneuver

### Two infantry platoon leaders and platoon sergeants, and two armor platoon leaders and platoon sergeants.

The proliferation of leadership at the platoon level increased flexibility for maneuver across the battlefield during the demonstration. The ability to dismount infantry forces to complete a tactical task – with platoon leadership sending situation reports while maneuvering Bradley platoons to prevent enemy forces or establish blocking positions – increased C2. During our scenario, the task was to seize key terrain (infantry platoon), destroy enemy reconnaissance patrol vehicles and interdict enemy reinforcements maneuvering inside the area of operations. Simple radio calls and GCMs among company and platoon leadership enabled three ongoing fights simultaneously.



**Figure 2. Infantry Soldiers dismount from BFVs during the AAC demonstration.** (U.S. Army photo by Patrick A. Albright, MCoE Public Affairs Office)

An assigned platoon leader and platoon sergeant for each of the four platoons in an AAC allows platoons to complete their mission-essential task list without focusing on other training. Infantry and Bradley platoons can independently conduct Tables I-VI for individual and crew weapon systems, allowing each platoon to increase lethality. Following completion, company collective tables must be integrated, but that was beyond the scope of this demonstration and will require more analysis.

## Intelligence

Intelligence collection for the AAC is limited by the constraints of the RQ-11 Raven (a small hand-launched remote-controlled unmanned aerial vehicle), which is organic to each AAC. Unfortunately the Raven proved to be an insufficient means of collecting intelligence during the offense, considering the speed and optics of a mounted force. However, the AAC used the Raven to monitor enemy named areas of interests when we became static, which allowed the AAC to maneuver combat power during the scenario.

Launching the Raven from a moving Bradley increased its mobility and survivability, allowing a higher probability of a first-time flight.

## Fires

**60mm mortars are ineffective in an armor fight.** Since the maximum effective ranges for the M224A1 60mm mortar system and M242 Bushmaster 25mm cannon are similar, the three-Soldier 60mm mortar team could be replaced with an anti-tank section to better support against enemy armor formations. The 60mm mortar munitions are effective against infantry Soldiers and light-skinned vehicles, but they add little firepower and suppression abilities when there are multiple BFVs on your support-by-fire line.

The M320 grenade launcher (organic to the infantry platoons) and 25mm Bushmaster also can provide suppression in dead space, similar to the potential use of the 60mm mortar systems. Each infantry squad will carry two M320s, allowing instant suppression when a squad leader deems it vital.

## Sustainment

### Sustaining the company first sergeant as a 19Z (as opposed to an 11Z).

Throughout the wars in Afghanistan and Iraq, U.S. forces had the highest survival rates for any conflict in military history due to the “golden hour” medical evacuation policy.<sup>3</sup> Credit is due to the professionalism, training efficiency and experience of our first sergeants, who apply the ability to balance giving orders during high-stress times, when microseconds count, and getting the casualty to a field hospital in one hour.

When casualties happen inside the AAC, a 19Z company first sergeant will have the knowledge and experience required to move casualties rapidly. An 11Z could accomplish the mission with enough training, of course, but a 19Z has years of experience and technical knowledge on the BFV to know what is most efficient. An 11Z first sergeant who has only served in light formations would have to learn hard lessons on maneuvering casualties with vehicles, whereas a 19Z has worked these procedures since his/her days as a platoon sergeant.

### Changing the company executive officer from 11A to either 19A or 11A.

Battalion commanders have the ultimate authority for officer manning at the executive-officer level. Infantry and armor lieutenants are assigned to the AAC as their first duty station. Therefore, the education and experience levels between an 11A and a 19A on maintenance, resourcing and other executive-officer tasks are similar. Giving the battalion commander the freedom and flexibility to choose the right person for increased responsibility doesn't constrain the position to a specific branch.

## Protection

The BFV provided unmatched protection, allowing infantry Soldiers to dismount within 75 meters of the objective. The suppression from 25mm cannons during the infantry Soldiers' maneuver into their support-by-fire position was overwhelming to the enemy forces, destroying most enemy threats. Once the infantry forces were within the correct right-limit of the 25mm Bushmaster (using a GCM), the

BFV ceased fire with the 25mm Bushmasters but continued to suppress with the 7.62 coaxial. The fire superiority provided by the BFV allowed the maximum amount of protection needed to maneuver across the objective safely.

## Summary

A lethal platoon is the building block of the entire force. The AAC presents the potential to increase lethality with specialized training specific to the 19C MOS. Creating technically and tactically proficient Bradley crew members who continue to build from lessons-learned and hard-earned experiences will undoubtedly increase lethality. However, the AAC does present issues and challenges inside each warfighting function, such as:

- C2 of four platoons;
- Communications architecture;
- 60mm mortar teams vs. an anti-tank section; and
- Manning of specific positions.

More testing is required for continued refinement of these issues.

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## Notes

<sup>1</sup> MAJ (Promotable) James Burnett and MAJ Jeffrey A. Feser; “At the Forward Edge and Beyond: Lethality and the

Armored Brigade Combat Team”; **ARMOR**; Fall 2020 edition.

<sup>2</sup> Scott Boston, Michael Johnson, Nathan Beauchamp-Mustafaga and Yvonne K. Crane; “Assessing the Conventional Force Imbalance in Europe: Implications for Countering Russian Local Superiority”; Santa Monica: RAND Corporation; 2018; retrieved Aug. 8, 2021, from <https://www.rand.org/content/dam/rand/pubs/>

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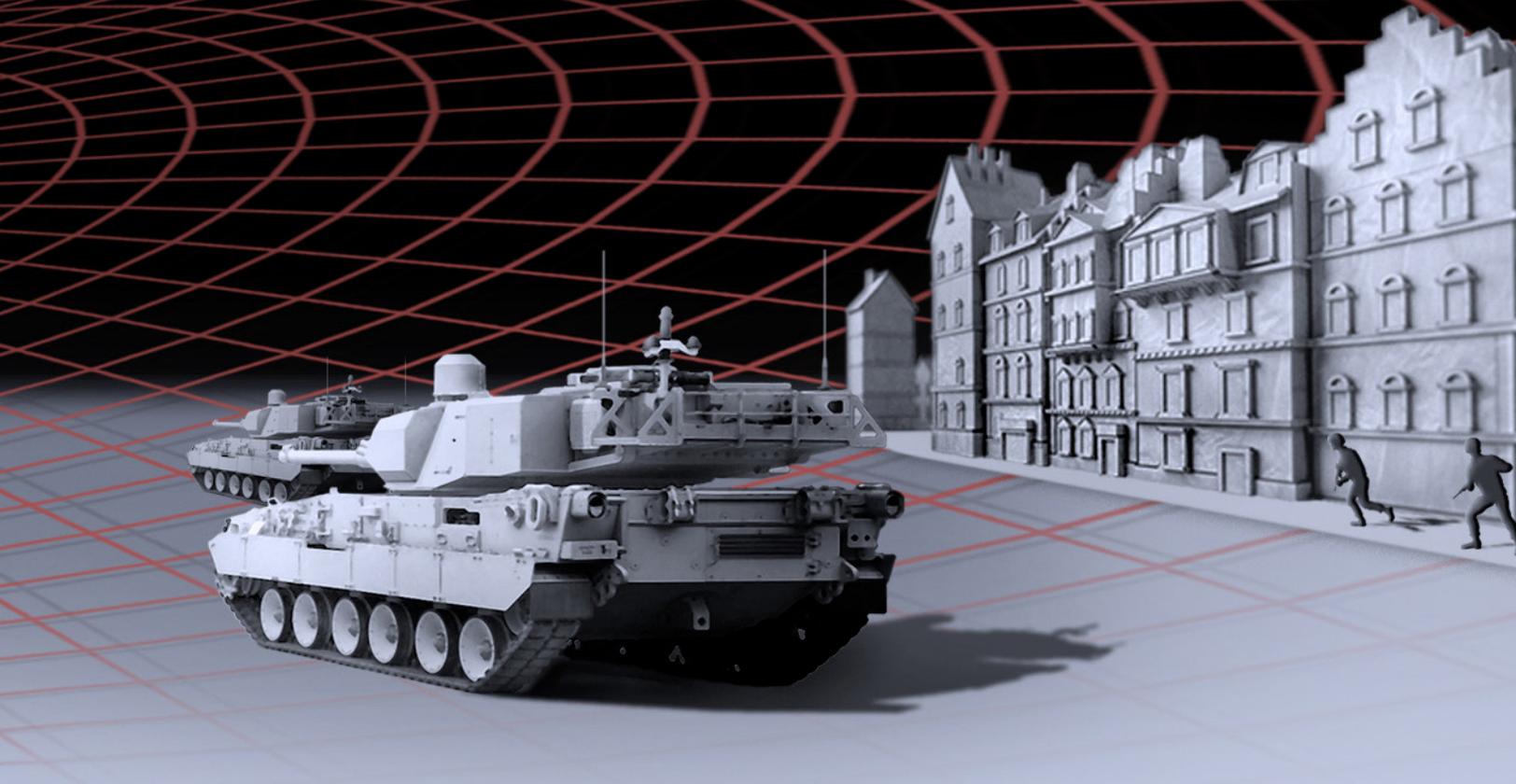
<sup>3</sup> Ben Barry, “Battlefield Medicine: Improving Survival Rates and ‘the Golden Hour’”; **Military Balance Blog**; April 16, 2019; retrieved from the International Institute for Strategic Studies Website; <https://www.iiss.org/blogs/military-balance/2019/04/battlefield-medicine>.

## ACRONYM QUICK-SCAN

**AAC** – armored assault company  
**BFV** – Bradley Fighting Vehicle  
**C2** – command and control  
**CBRNE** – chemical, biological, radiological, nuclear and explosives  
**EXFOR** – experimental force  
**GCM** – graphic-control measure  
**MCoE** – Maneuver Center of Excellence  
**MOS** – military-occupation specialty  
**NATO** – North Atlantic Treaty Organization  
**NCO** – noncommissioned officer  
**RTO** – radio-telephone operator



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# A Balanced Team: The Need for Options in Armored Warfare

by CPT Christopher M. Telle

“It’s the best main battle tank in the world – if you can get it there,” a 1<sup>st</sup> Infantry Division battalion commander in Kosovo once pointed out about the Abrams tank.<sup>1</sup>

The role of the tank is to close with and destroy the enemy through maneuver, firepower and shock effect. Its main objective is not the enemy’s strength but rather its weakness (see Point A). Armored formations are unique in their ability to project armored mobile firepower through or around an enemy’s front lines and into its rear echelons.

This ability continues to be the tank’s exclusive domain on the battlefield, but the U.S. Army’s dominance of that domain is not a foregone conclusion. Maintaining the strength of our armored formation in the face of multi-domain operations, a spectrum of threats (terrorists, insurgents,

near-peers) and a complex battlefield (civilians, criminals, urban) requires innovation, agility and moving beyond a “one-size-fits-all” concept of the main battle tank (MBT). With that in mind, returning the medium tank to the Army’s equipment roster is the key to filling a major capability gap and ensuring success on the future battlefield.

This article will highlight the need for that medium tank, especially when it comes to providing offensive firepower in areas that the Abrams, or its logistics tail, would have issues reaching. It defines a medium tank that can provide versatility to the force, highlights potential characteristics of the future battlefield, outlines concerns about the M1A2 Abrams on that battlefield and addresses a “medium tank” proposal that appeared in *ARMOR* in 2020. I will then describe what would conceptually make a medium tank, and how such a platform

might be gainfully employed doctrinally and organizationally, and then conclude with recommendations on how to better assess the need and potential of a medium tank.

While current doctrine addresses the role of the tank platoon – “to close with and destroy the enemy” – it is less forthcoming with a definition of what makes a tank a tank.<sup>2</sup> Armor Branch frequently uses the term *mobile protected firepower*, but this definition falls short, as it can be applied to infantry fighting vehicles (IFVs) such as the Bradley Fighting Vehicle (BFV).

Though there may be some confusion in the eyes of the civilian press, the Bradley is not a tank. In a fight, especially between tanks, the side that engages first has a considerable advantage. That advantage quickly disappears if, like the Bradley, the vehicle that fires first lacks the ability to defeat the enemy’s armor with a single shot.

While not authoritative, for the purpose of this article my proposed definition of a tank is “an armored, tracked, turreted combat platform that possesses a main gun capable of killing the enemy’s best armored vehicles.”

## Future battlefield

The future battlefield is currently a hot topic in the professional community and so only a few highlights need to be addressed here. A future conflict may not feature a megacity; it will, however, certainly feature urban terrain. Proliferation of unmanned aerial systems (UASs) paired with indirect fires as in the Russian Reconnaissance Strike Complex will require significant tactical mobility – both to disperse as well as to concentrate for engagements.<sup>3</sup> Enemies may fight as insurgents, hiding among the population; as conventional formations mirroring our own combined-arms tactics; or, most likely, some combination thereof.

The resulting battlefield will be open and sparsely populated with combat platforms compared to previous wars, not just to the lethality of fires paired with reconnaissance, but also simply due to the smaller size of the armies involved. As of 2020, the Russians no longer had seven divisions massed at the mouth of the Fulda Gap. North Atlantic Treaty Organization armies are a fraction of the size they once were. And the vast majority of U.S. combat power remains separated from potential conflicts by the two largest oceans in the world.

The M1 Abrams tank was developed to counter a specific threat (massed Warsaw Pact armor) in a specific environment (Central Europe) in a specific manner (well-prepared defensive operations in depth). It was the result of decades of development by the Army into the concept of an MBT. The MBT approach was based on the merger of heavy and medium tanks types following World War II. The output was a “universal” tank that balanced protection, maneuverability and firepower.

Over time, obsession with increased protection has greatly increased the weight and decreased the maneuverability of the Abrams. The M1A2C

weighs more than 80 tons.<sup>4</sup> While the German Leopard and Israeli Merkava approach the Abrams in mass, other potential-threat MBTs such as the Russian T-14 (55 tons), T-90 (50 tons) and Chinese Type 98 (55 tons) remain considerably lighter.<sup>5</sup>

The fact that the Abrams went on to be successfully employed in Operation Desert Storm and the Global War on Terrorism is more a testament to American crewmembers, leaders and, most importantly, logistics than it is to inherent all-round superiority in the design of the 70-ton, fuel-intensive, defense-oriented Abrams. While its armor, fire control, weapons and optics make it rightly to be feared, lighter, more maneuverable tanks led by capable opponents will likely gain positions of advantage by going where the Abrams is not going or where it cannot go. This Abrams avoidance will be aided by UAS systems, Special Operations Forces operations in the American rear and long-range rocket and missile strikes on logistics hubs – all of which will reduce the flow of fuel that all vehicles, but especially the Abrams, rely on.<sup>6</sup>

This brings us to the need for a medium tank to complement (not replace) the Abrams. The recent article making the case for a medium tank in *ARMOR* does a good job highlighting some of the limitations of the Abrams but misses the mark when it comes to a true medium tank.<sup>7</sup> The focus on a platform optimized for megacity warfare results in a poorly designed tank for any operations not occurring in an urban area.

For example, the requirements list for a future operating environment specifies a main gun with high-explosive ammunition – it specifically does not address the need to be able to defeat enemy armored vehicles in urban areas or elsewhere. Likewise, the requirement of 360-degree armor protection will leave the vehicle either too heavy to be properly mobile, or armored enough to resist individual-fired anti-tank weapons but not the main-gun rounds of an enemy tank.

The vehicle requirements outlined in MAJ Jeremy Zollin’s article<sup>7</sup> (“The Case for a Medium Tank to Be Incorporated

into the Joint Force,” *ARMOR*, Spring-Summer 2019) could best be met by an American equivalent of the Russian *Boyeva Mashina Pekhoty* “Terminator” (BMP-T), an armored, tracked, turreted, infantry-support vehicle with enough mobility, protection and firepower in a platform that lends itself to future remote control or automation (see Point B).

The vehicle requested in Zollin’s article is an IFV, not a medium tank. Filling the niche of medium tank with a vehicle optimized almost exclusively for urban combat would not do anything to address the limitations of the Abrams in the offense nor provide flexibility to future commanders on a multi-domain battlefield that will certainly extend beyond urban centers. Let’s call this urban-support vehicle “urban mobile protected firepower” (UMPH) (Point C). Labeling the urban-support vehicle as such allows the use of the term “medium tank” where it actually belongs.

## Medium tank

A true medium tank would restore to the Army the ability to conduct offensive operations against a near-peer threat in a variety of terrain and with greater logistical freedom in the face of anti-access, area-denial threats and UAS. To fill this niche, the medium tank would need to meet requirements in weight, firepower, fuel consumption and mechanical resiliency.

- **Weight.** To fill the role of medium tank, the proposed platform would obviously require a reduction in weight from the heavy Abrams. Armor would comparatively be reduced, but an active-protection system (Point D), scalable armor additions like explosive-reactive armor and a decreased-size turret (done by implementing an autoloader) would all serve to mitigate the risk to the platform and crew. The weight saved would decrease fuel consumption and allow greater mobility. Further research should identify an upper weight limit based on bridge classifications in areas such as Eastern Europe or Southeast Asia.
- **Firepower.** The medium tank should possess a main gun capable of

defeating enemy armored vehicles with a single shot, thereby ensuring it can conduct offensive operations against a full spectrum of threats. Based on current tank design, that gun needs to be at least 120mm. An anti-tank guided missile (ATGM) capability would further increase the lethality of the medium tank and provide a long-range capability to mitigate the lessened armor compared to an Abrams.

- **Fuel consumption.** For the medium tank to execute offensive operations in an open battlefield where supply lines are heavily restricted, it cannot operate with the fuel thirst of the Abrams tank. Employment of a diesel engine designed with efficiency in mind will ensure offensive tempo with a considerably reduced logistics tail. A consumption rate similar or less than that of the BFV should serve as an aim point.
- **Mechanical resiliency.** Key to this resiliency is an extreme emphasis on redundancy and reliability. We will ask much of these tanks and their crews, and cannot cripple ourselves before we get out of the gate with overcomplicated systems reliant on field-service representative support and digital troubleshooting. As an added benefit, the diesel engine would enable mechanic cross-training, compared to the turbine engine of the Abrams. Less maintenance burden means more time to train greater proficiency in crews and more combat power forward for longer.

## Properly using medium tank

“The medium tank units are the primary striking force of an armored division. ... The heavy tank of the armored division will normally be the best antitank weapon when the division meets hostile armor, which the medium tanks cannot easily defeat,” according to Field Manual (FM) 17-33, **Tank Battalion**, 1949.<sup>8</sup>

While a medium tank can be valuable in all three brigade-combat-team types, the most potential for a medium tank is found in the Stryker brigade combat team (SBCT). In an armored brigade combat team (ABCT), the

cavalry squadron or one or more combined-arms battalions (CABs) equipped with medium tanks could provide increased flexibility to the brigade commander. A medium tank and mechanized-infantry task force would be able to operate at longer ranges and with less of a logistics tail than our current CABs, while still employing the offensive killing power of tanks. An infantry brigade combat team could benefit from an attached medium-tank battalion – much as infantry formations in World War II and Korea made great use of the independent tank battalions. These medium-tank formations would provide concentrated offensive options against a peer enemy, allowing the mobile protected firepower “light tank” platform to be dispersed in support of infantry companies and battalions.

However, the medium tank’s ability to enable an SBCT’s offensive maneuver may be its greatest contribution. The Stryker brigades, despite speed and large numbers of infantry dismounts, lack offensive firepower – especially in open or semi-open terrain.<sup>9</sup> By incorporating medium-tank battalions on a one-for-one or one-for-two basis with Stryker-equipped infantry battalions, the formation would significantly increase its agility and combat power. Medium tanks would provide the firepower and armor needed to get the Strykers and their dismounts onto an objective. This increased combat power would not tax the Stryker logistics footprint the way a CAB or multiple companies of M1A2 tanks would, thus maintaining the mobility and speed of the SBCT.

## Accepting trade-offs

“We know exactly what we want. We want a fast, highly mobile, fully armored, lightweight vehicle. It must be able to swim, cross any terrain and climb 30-degree hills. It must be air-transportable. It must have a simple but powerful engine, requiring little or no maintenance. The operating range should be several hundred miles. We would also like it to be invisible,” GEN Bruce C. Clarke once wrote.<sup>10</sup>

As GEN Clarke humorously highlighted, while we may want a true one-size-fits-all solution, the design and

fielding of Army equipment is always a matter of trade-offs. In the case of the medium tank proposed here, the firepower of the Abrams is maintained while accepting some risk in protection. The potential offensive maneuver capability across multiple types of terrain this medium-weight tank brings to the Army should also be added to the scale of trade-offs we are willing to make.

## Future tech can wait

This capability, as well as UMPF, does not have to wait for a radical breakthrough in technology.<sup>11</sup> We don’t need directed-energy weapons or quantum sensors to field such a necessary component of combined-arms success. Using existing technology, pulling the lessons-learned from our allies on their design and employment of medium armored vehicles, emphasizing reliability and rapid prototyping, we could have units testing the next medium tank at our combat-training centers in relatively short order.

Even before a prototype, opportunities to test medium tanks in action as part of Army formations exist. Japanese tank battalions equipped with the Type 90 Tank (55 tons) are already integrated into National Training Center rotations, while in Europe the Polish PT-91 (50 tons) or T-80s and T-90s provide examples to integrate and research at the Joint Multinational Readiness Center and elsewhere.<sup>12</sup>

While the Abrams will remain a clear symbol of U.S. commitment and continue to excel as a heavyweight on the battlefield, it needs a medium counterpart to restore the offensive capability essential to the combat arm of decision. By restoring this capability, we will enable American armor to exploit the openness of the battlefield to close with and destroy the enemy where they are weakest – in their rear area.

“We have yet to find a situation in which armor, to some degree, could not be profitably employed. The tank has repeatedly exploited the situation in spite of the terrain,” summarized COL Thomas D. Gillis, commander, 24<sup>th</sup> Infantry Regiment (Korean War).<sup>13</sup>

**Point A.** While a tank should be able

to defeat other tanks, its ideal prey is enemy command-and-control nodes, logistics and support elements.

**Point B.** Unlike the official mobile protective firepower program, the BMP-T possesses the ATGMs needed to defeat modern armor, something a 105mm gun would struggle with.

**Point C.** UMPF. Pronounced “oomph” as in “We’re pinned down! We need some more oomph over here!”

**Point D.** An active-protective system built into the design from the beginning, not a heavy and bulky attachment to a legacy system.

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*science degree in international relations and German from the U.S. Military Academy, West Point, NY.*

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<sup>6</sup> MAJ Travis Michelena, “The Fallacy of Logistics Dominance,” *ARMOR*, Spring-Summer 2019, <https://www.benning.army.mil/armor/eARMOR/content/issues/2019/Spring-Summer/2-3Michelena19.pdf>.

<sup>7</sup> MAJ Jeremy Zollin, “The Case for a Medium Tank to Be Incorporated into the Joint Force,” *ARMOR*, Spring-Summer 2019, <https://www.benning.army.mil/armor/eARMOR/content/issues/2019/Spring-Summer/2-3Zollin19.pdf>.

<sup>8</sup> Department of the Army, FM 17-33, *Tank Battalion*, September 1949, <https://>

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**ATGM** – anti-tank guided missile  
**BFV** – Bradley Fighting Vehicle  
**BMP-T** – *Boyeva Mashina Pekhoty* “Terminator” (Russian tank-support fighting vehicle)  
**CAB** – combined-arms battalion  
**FM** – field manual  
**IFV** – infantry fighting vehicle  
**MBT** – main battle tank  
**RoK** – Republic of Korea  
**SBCT** – Stryker brigade combat team  
**UAS** – unmanned aerial system  
**UMPH** – urban mobile protected firepower

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# The Russian Army and Maneuver Defense

by Dr. Lester W. Grau and  
MAJ Charles K. Bartles

In the practice and application of historical analysis, the Russian General Staff closely examines details of past conflicts – noting what they learned and even unlearned – to keep their military science and training forward-looking. Maneuver defense is one of those lessons.

## Russia's strategic defense

Russia and the Soviet Union fought successful major wars using strategic defense and withdrawal. Russia defeated Napoleon by initially conducting a strategic defense and multiple withdrawals, followed by decisive counterstrokes.<sup>1</sup> Up to his invasion of Russia, Napoleon's strategy proved superior to that of his enemies and his operations were primarily offensive. Napoleon was often successful in surrounding an enemy army or defeating it in one decisive battle and then occupying its capital city and taking charge of the country.<sup>2</sup>

Russia defeated Napoleon's invasion by losing battles, yet maintaining and

rebuilding its army throughout successive retreats. As the army retreated, the Russians set fire to their own crops and villages, leaving scorched earth behind. Napoleon seized Moscow, yet Russia still refused to surrender and soon flames consumed Moscow. Napoleon had reached his culminating point, and his supply lines stretched to breaking. Russia was fighting a strategy of "war of attrition," whereas Napoleon was fighting a strategy of "destruction."

A Russian "inverted front" grew in Napoleon's rear area as guerrilla forces attacked Napoleon's already inadequate supply columns and eroded his fighting strength. There were two types of guerrilla groups. The first were volunteers who took up arms against the enemy and had no affiliation with or support from the Russian government. Theirs was a popular "people's war," even though some of these guerrillas were little better than opportunistic highwaymen and freebooters. There was little coordination between the Russian ground forces and the "people's war" guerrillas.

The second type were

government-paid, -led and -equipped cavalry and Cossack forces formed into "flying detachments" of up to 500 uniformed or non-uniformed combatants who worked in coordination with the army and attacked the enemy flanks and rear.<sup>3</sup> Both types of guerrillas were important in the war, but the need for central control was obvious.

The Russian army refused to provide Napoleon with the opportunity for a decisive battle that would fit his strategy of destruction. Napoleon began his withdrawal from the ashes of Moscow Oct. 16, hoping to beat the Russian winter. He did not. Napoleon abandoned his army as it disintegrated and froze. Some 27,000 soldiers of the original 500,000-strong Grand Armée survived.

In October 1813, the coalition of Russia, Prussia, Austria and Sweden defeated Napoleon's reconstituted army at Leipzig. Just before the Battle of Leipzig, Wellington's British army defeated the French army in Spain and Portugal and then crossed into France. The Russian army constituted part of the occupation force in Paris.

Their attrition strategy of fighting battles and retreating while reconstituting their force and sapping the enemy strength, coupled with a strong series of counterstrokes, worked. Russia had traded space for time, drawing Napoleon deep into Russia, overextending his supply lines over Russia's muddy, often-impassable roads and launching counterstrokes at the opportune time.

The Soviet Union did not intend to defeat Nazi Germany in this fashion, but after bungling the initial period of war, they inadvertently emulated Tsar Alexander I by fighting a retreat all the way to Moscow while building the forces for a series of counterstrokes. This time, Moscow held while the German effort culminated and their supply lines stretched to breaking. The muddy roads and "inverted front" of



Figure 1. A 1920 painting depicts Napoleon's retreat from Moscow.



**Figure 2. As irregular cavalry, the Cossack horsemen of the Russian steppes were best suited to reconnaissance, scouting and harassing the enemy's flanks and supply lines.**

Moscow-controlled guerrillas complicated an already difficult German supply effort.

After Kursk and Stalingrad, the Axis alliance was on the defensive and the operational counterstrokes of the Red Army drove the invaders out of the Soviet Union and Eastern Europe. The Red Army constituted both the initial, and later part of the Allied occupation force in Berlin, deep within the Soviet Occupation Zone.<sup>4</sup>

## Russian maneuver defense

*Maneuver defense* [манёвренная оборона] is a tactical and operational form of defense whose goal is to inflict enemy casualties, gain time and preserve friendly forces with the potential loss of territory. It is conducted, as a rule, when there are insufficient forces and means available to conduct a positional defense.<sup>5</sup>

This differs from the U.S. concept of the mobile defense, which "is a type of defensive operation that concentrates on the destruction or defeat of the enemy through a decisive attack by a striking force. It focuses on destroying the attacking force by permitting the enemy to advance into a position that exposes him to counterattack and envelopment. The commander holds most of his available combat power in a striking force for his decisive operation, a major counterattack.

He commits the minimum possible combat power to his fixing force that conducts shaping operations to control the depth and breadth of the enemy's advance. The fixing force also retains the terrain required to conduct the striking force's decisive counterattack."<sup>6</sup>

This differs from the Russian concept in that the Russians do not intend to permit the enemy to advance to counterattack. They intend to contest the enemy and reduce his forces without becoming decisively engaged. Russian maneuver battalions and brigades conduct maneuver defense, whereas the United States considers mobile defense as a corps-level fight.<sup>7</sup> In future conventional maneuver war, continuous trench lines, engineer obstacles and fixed defenses extending across continents, as occurred in Europe in World Wars I and II, will not occur. According to Russian military guidance, the maneuver defense, eventually leading to a positional defense, will be their primary defense and will be conducted by the maneuver brigades as their base formation.<sup>8</sup>

Maneuver defense occurred in medieval Russia but was realized as a new form of combat action near the closing of World War I.<sup>9</sup> The first extensive use of maneuver defense occurred during the Russian civil war<sup>10</sup> and was due to a variety of equipment, political and geographic factors. The

uneven distribution of weapons from World War I, the uncompromising goals of the Reds and the Whites, and the expanse of the territory on which the war was fought were far better adapted to this dynamic, mobile form of combat, unlike the continuous trench-line warfare of Western Europe during World War I.

During the Russian civil war, several echelons using unprepared lines and engineer obstacles initially conducted maneuver defense. In a short time, however, it sometimes evolved to include positional defenses, coupled with active counterattacking forces that conducted flanking attacks and encirclements. Daring cavalry raids into the rear of the enemy often distracted the enemy during necessary withdrawals to new lines or positions.<sup>11</sup>

During the mid-war period, Western theorists such as J.F.C. Fuller discussed future war in terms of combined arms and new weapons such as the tank, airplane and radio. The Russians had actual practical experience in this new theoretical maneuver war that their Western counterparts lacked. Granted, large horse-cavalry formations played a much larger role than the few existing tanks present in the Russian civil war, but the scale and scope of the fighting in Russia incorporated the vision of that future combat. Victory would belong to the state that could concentrate superior forces to overwhelm an enemy at a particular location and could rapidly maneuver against flanks, penetrate positions and encircle forces to destroy a thinly spread enemy.<sup>12</sup>

The Red Army's 1929 field regulations used the term подвижная оборона [*mobile defense*] in Article 230: "Mobile defense takes place when the combatants do not defend to the end, rather slip away from the enemy and move to a reinforce a new defensive line when the operational concept is that it must sacrifice a portion of territory to gain necessary time and protect the lives of the force."<sup>13</sup>

The follow-on 1936 and 1939 field regulations provided recommendations for the preparation and conduct of mobile defense. The 1936 field

regulation envisioned two possible mobile defense maneuvers. With the first, two defensive lines would leapfrog through each other; in the second, a strong rear guard would cover a single retreating line. The 1939 field regulation slightly modified the 1936 guidance by discussing what conditions may precede initiating a mobile defense and what steps could be taken to strengthen the defense.

The 1941 field regulation changed the term to маневренная оборона [*maneuver defense*]: “The maneuver defense includes the conduct of a series of defensive battles leading to successive designated lines, synchronized with short surprise counterattacks. The maneuver defense forces are included in the coordinated maneuver of the force using fires and the broad employment of all types of obstacles.”<sup>14</sup>

The Germans invaded the Soviet Union June 22, 1941. The Soviet tried to organize counterattacks while they were retreating or were being enveloped. They failed. Initial positional defenses crumbled, nor could the Soviets organize a maneuver defense before it was overrun. The Wehrmacht reached the Mzhaisk defenses outside Moscow by Oct. 13, 1941. The Mzhaisk defenses were a hastily constructed series of four lines of undermanned defensive positions.

General of the Armies Georgy Zhukov issued a special directive: “In the event that it is impossible to check the enemy offensive, transition to a maneuver defense.”<sup>15</sup> A list of necessary planning steps and considerations followed this directive. The Germans attacked through the end of October and ground to a halt. The Soviets conducted maneuver defense in some sectors, upgraded and reinforced their other defenses, and stopped the second German offensive conducted Nov. 15 to Dec. 5; the Red Army slowly began their own counteroffensive Dec. 5. The operational-level maneuver defense had evolved. Divisions and regiments mainly conducted tactical-level maneuver defense.

## ‘To the death’

Despite the Red Army’s success using maneuver defense, it disappeared

from the 1948 field regulations. The ongoing concept of the *unified defense* [единой оборона] precluded such a variant to positional defense. After Stalin’s death in 1953, the debate over the conduct of land warfare on the atomic battlefield began. Soviet ground-force structure dramatically changed as battalions became smaller, completely motorized or mechanized, lost their organic direct-fire artillery and received T-55 tanks with lead liners to soak up the radiation. Unfortunately for the motorized rifle soldiers, their personnel carriers and trucks had no such lining, although initial planning involved driving over nuclear-irradiated zones in the attack.<sup>16</sup> Defense would be temporary and positional.

A lively debate began within the ground forces, positing that maneuver defense was optimum for the nuclear battlefield. Marshal of the Soviet Union R. Ia. Malinovskiy, commander of Soviet Ground Forces, ended the debate on maneuver defense, stating: “This point of view is wrong and is completely unsuitable for these times. We do not have the right to train our forces, commanders and staffs where every commander, based on his own judgment, can abandon his [defensive] positions, regions and belts to maneuver. ...There is one unshakeable truth with which we must conduct our lives – with unswerving stubbornness we will hold our designated lines and positions, hold them to the death.”<sup>17</sup>

At the end of the 1980s, the USSR Minister of Defense, Marshal of the Soviet Union Dmitry Yazov, re-established maneuver defense in Soviet military theory as one of the accepted forms of defense. Technology and warfighting techniques were changing. Deep fires, distance mining, ambushes, fire sacs, air assaults, flanking and raid detachments were changing modern war and facilitating counterattacks. Maneuver defense fit within the changing dynamics.<sup>18</sup>

## Maneuver defense in contemporary combat

Since the 1990-1991 Gulf War, ground forces have realized that unprotected maneuver in the open may lead to decimation. Less-modern ground forces have attempted to negate this by

moving the fight to terrain that defeats or degrades high-precision systems – mountains, jungle, extensive forest, swamps and cities – while conducting a long-term war of attrition to sap the enemy’s political will.

Difficult terrain will also be a valuable ally in future conventional maneuver war, as will camouflage, electronic and aerial masking, effective air-defense systems and secure messaging. Maneuver defense will clearly be a feature of future conventional maneuver war.

One thing that may change dramatically is the fundamental concept of the main, linear, positional defense to which maneuver defense leads. Perhaps the main linear defense will be anchored in difficult terrain. Perhaps the main defense will more closely resemble the security-zone maneuver defense. The main defense may become an expanded security zone containing counterstrike/counterattack forces and a concentration of high-precision weapons systems. Open flanks may be covered by maneuvering artillery fires, aviation and positional forces not under duress.

The Russian concept of maneuver by fire may dominate the battlefield, as it alone may enable maneuver.<sup>19</sup>

The linear battlefield may be replaced by the fragmented, or nonlinear [очаговый], battlefield, where brigades maneuver like naval flotillas, deploying maneuver and fire subunits over large areas, protected by air-defense systems, electronic warfare and particulate smoke. Strongpoints will be established and abandoned, artillery fires will maneuver and difficult terrain will become the future fortresses and redoubts.

## Fragmented battlefield

World War I in the West was a positional fight where artillery, field fortifications and interlocking machinegun fire prevented maneuver. World War I in the East, however, was not always positional but was sometimes fluid. The antithesis to the stalemate in the West was the tank. Yet the tank did not spell the end of linear defense. During World War II, the tank enabled maneuver in some places, but in other

places, difficult terrain and integrated defenses prevented maneuver and fires prevailed.

For example, the Korean War began with a great deal of maneuver but stalemated into positional mountain combat enabled by fires. Vietnam was about the maneuver of the helicopter, but difficult terrain dominated the battlefield.

The antitank guided missile and precision-guided munitions currently threaten maneuver. Still, advances in fires, electronic countermeasures, robotics and air defense may enable maneuver.

As another example of an army using difficult terrain, the Serbian army proved quite adept at hiding and surviving in it during the 78-day Kosovo air war. What they lacked was an opposing ground force to combat at the termination of the bombing.<sup>20</sup>

The fragmented battlefield has become common following the Gulf War. The Soviet-Afghan war, the Angolan civil war, the Chad-Libya conflicts, the Battle of Mogadishu, Operation

Enduring Freedom, most of Operation Iraqi Freedom, the Libyan civil war, the Sudan conflicts, the Saudi Arabian-Yemen conflict – all have involved fragmented battlefields.<sup>21</sup>

How do peer forces fight conventional maneuver war on a fragmented battlefield? Permanent combined-arms battalions appear to be an important component.

For decades, the Soviets and Russians have struggled with fielding, training supporting and fighting a combined-arms battalion with its own tanks, motorized rifle, artillery, antitank and support subunits capable of fighting and sustaining independently over a large area. Russian maneuver brigades now constitute one or two battalion tactical groups and are working to eventually achieve four.<sup>22</sup>

The Russians have a long history of conducting a fragmented defense on a fragmented battlefield. The Russian civil war is replete with such examples.<sup>23</sup> During World War II, in addition to its large conventional force, the Soviets fielded the largest partisan army

in history. It conducted a fragmented offense and defense against a linear German force.<sup>23</sup>

Afghanistan, Chechnya and now Syria also featured fragmented offense and defense.

## Analysis of Russian defense

If the Russians fight a near-peer competitor, the maneuver defense may become the “normal” defense, with the positional defense as an anomaly. In a maneuver defense, within the brigade the battalion is normally assigned an area of responsibility of 10x10 kilometers (frontage and depth respectively), and a company position is up to two kilometers in frontage and up to one kilometer in depth. There is a distance of up to 1½ kilometers in depth between positions, which ensures mutual support of defending subunits and allows maneuver to the subsequent position.<sup>25</sup>

Figure 3 shows a Russian motorized rifle brigade in a maneuver defense.<sup>27</sup> Battalion positions are shown, and company fighting positions are

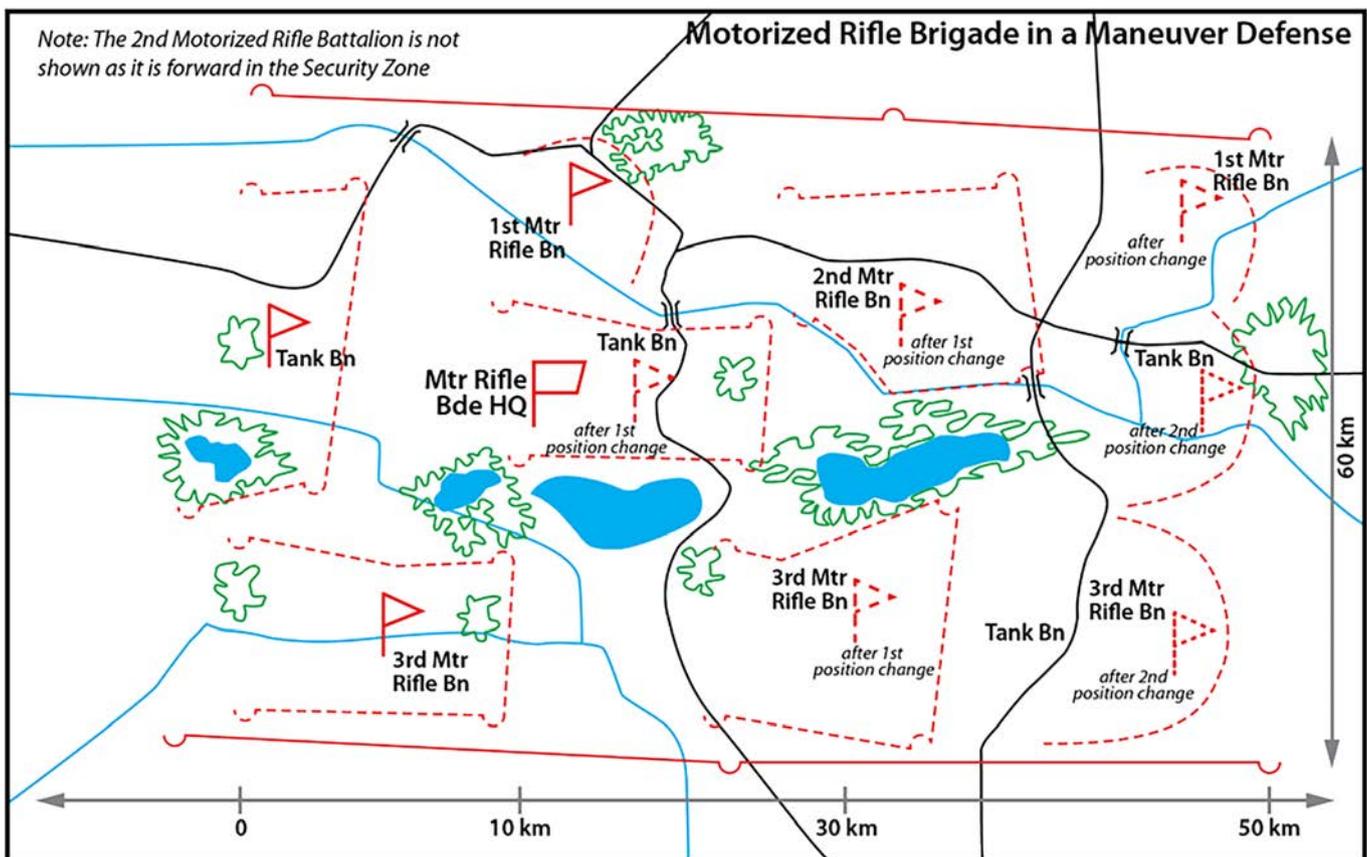


Figure 3. Russian motorized rifle brigade in a maneuver defense. (Diagram by Charles K. Bartles)<sup>26</sup>

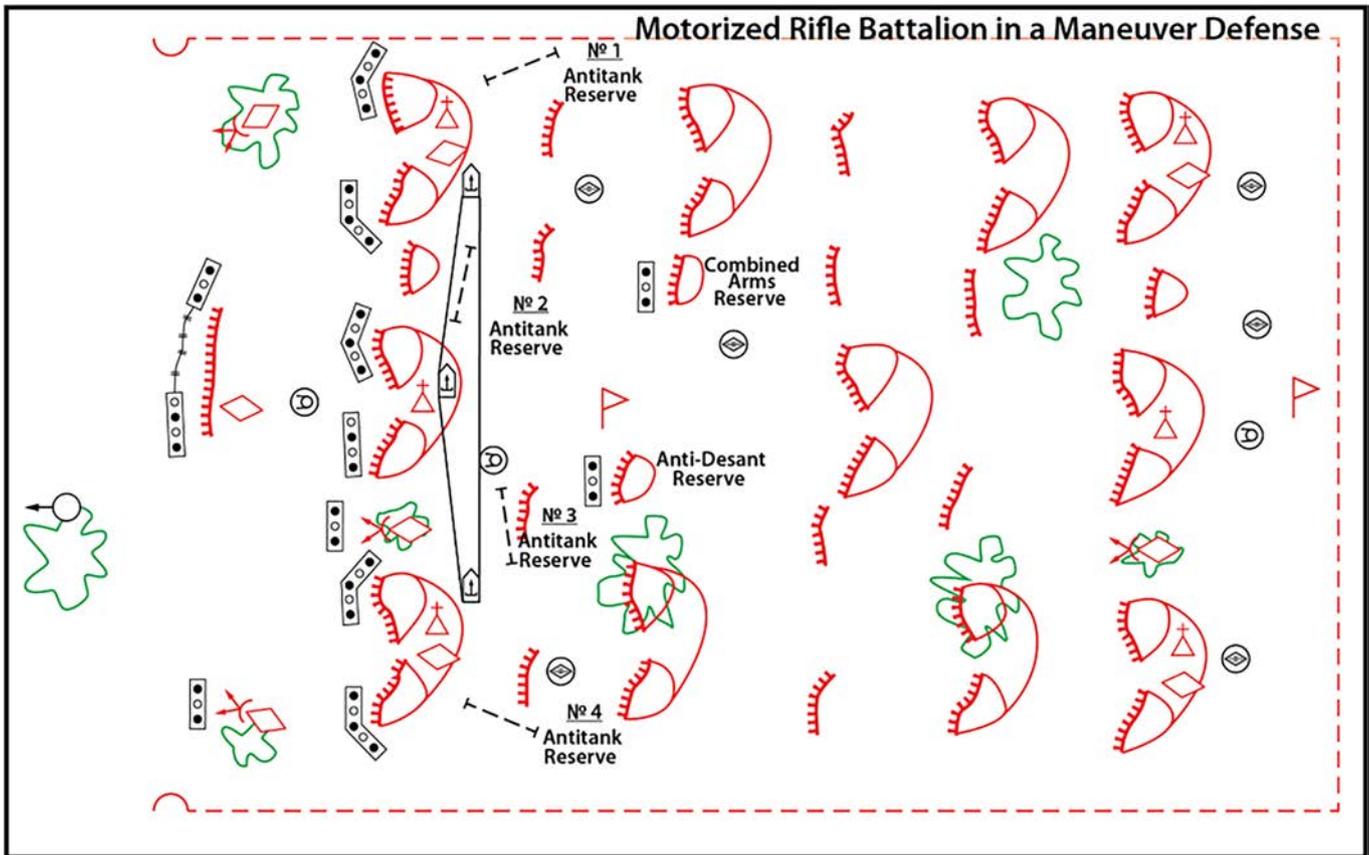


Figure 4. Motorized rifle brigade in a maneuver defense. (Diagram by Charles K. Bartles)<sup>29</sup>

depicted within the battalion positions, showing that the companies will fight from more than one position within each battalion position. The brigade defends against an attack from the west with its tank battalion to the north and 3<sup>rd</sup> Motorized Rifle Battalion to the south. The 2<sup>nd</sup> Motorized Rifle Battalion is deployed further to the west in forward positions and is not initially shown on this diagram.

The tank and 3<sup>rd</sup> Motorized Rifle Battalion cover three enemy high-speed avenues of approach. The northern approaches are considered the most dangerous. The enemy initially engages 2<sup>nd</sup> Motorized Rifle Battalion, which forces the enemy to deploy and slows his advance while Russian artillery or aviation fire damages the enemy advance. The 2<sup>nd</sup> Motorized Rifle Battalion does not become decisively engaged. Rather, it withdraws to the north and through the tank battalion, moves past 1<sup>st</sup> Motorized Rifle Battalion and occupies a defensive position in the north.<sup>28</sup>

The enemy then engages the tank battalion and 3<sup>rd</sup> Motorized Rifle

Battalion, which again forces the enemy to deploy while Russian aviation or artillery fire again damages the enemy advance. Neither battalion becomes decisively engaged but withdraws. The tank battalion withdraws under the covering fire of 1<sup>st</sup> Motorized Rifle Battalion, moves through 2<sup>nd</sup> Motorized Rifle Battalion and assumes a central defensive position to the east. The 3<sup>rd</sup> Motorized Rifle Battalion moves directly back and goes on-line with 2<sup>nd</sup> Motorized Rifle Battalion to its north. The enemy continues to advance and is engaged by 1<sup>st</sup> Motorized Rifle Battalion and the tank battalion, which again forces the enemy to deploy while being engaged by Russian artillery or aviation. The 1<sup>st</sup> Motorized Rifle Battalion and tank battalion do not become decisively engaged but move to a new position north of the tank battalion.

The enemy continues to advance and is engaged by Russian artillery or aviation fires while deploying against 2<sup>nd</sup> and 3<sup>rd</sup> Motorized Rifle Battalions. The 2<sup>nd</sup> and 3<sup>rd</sup> Motorized Rifle Battalions do not become decisively engaged.

The 2<sup>nd</sup> Motorized Rifle Battalion again moves directly back and goes on-line with the tank battalion to its north. The 2<sup>nd</sup> Motorized Rifle Battalion moves through 1<sup>st</sup> Motorized Rifle Battalion and tank battalion to take up a reserve position or to deploy as a forward detachment to start the sequence again.

Figure 4 shows a Russian motorized rifle battalion in a maneuver defense within its initial battalion box. (In this case, it is the initial position of 3<sup>rd</sup> Motorized Rifle Battalion in the brigade-defense figure.) The battalion is facing an enemy attack from the west and has a reconnaissance patrol forward. The battalion has a shallow security zone consisting of a motorized rifle squad in ambush to the north, a motorized rifle platoon reinforced with a tank, obstacles and two mixed minefields in the center, and a tank in ambush protected by a mixed minefield.

The battalion mortar battery is in the security zone in support of these elements. As the security-zone elements withdraw and reposition, the enemy is met by three motorized rifle

companies (of two platoons each) on-line. The companies are reinforced by a tank platoon and protected by seven mixed minefields. Man-portable air-defense systems are moved up to the rear of the company positions. The mortar battery has repositioned behind the center company. There are four firing lines for the antitank reserve protecting the flanks and junctures of the companies. The third platoons of the forward companies occupy fighting positions in an intermediate line from which they can cover the withdrawal of their companies. Three self-propelled artillery batteries are located each in support of a forward company but able to mass fires. The battalion command post is centrally located.

The companies do not become decisively engaged but withdraw under the covering fire of their rear platoon to take up new positions. The north and south companies move directly back to new positions in an alternate line, while the combined-arms reserve and anti-landing reserve cover the center. The central company moves further back on-line with the forward-company reserves and the on-order positions of the combined-arms reserve and anti-landing reserve in an intermediate line. The battalion command post, mortar battery and three artillery batteries move behind the final position shown on Figure 4.

The enemy advance encounters a line of six platoons that cause the enemy to deploy and slow down while being hit with artillery or aviation strikes. This line does not become decisively engaged but withdraws behind the two companies now on an alternate line with on-order positions for the combined-arms reserve and anti-landing reserve. Again, the enemy attack is slowed and punished, and then the line withdraws to its eastern position with the battalion on this alternate line. After slowing and punishing the advancing enemy, the battalion withdraws to its next battalion box, handing the battle off to a supporting battalion.

The battalion defends a 10-kilometer-by-10-kilometer box. Russians consider that normally there will be a two- to 2½-kilometer distance between

intermediate and alternate lines. The rate of advance of the enemy fighting through the defensive positions is problematic; however, the Russians calculate that, should the Russian defensive positions prove stable, standard values in average conditions find that the enemy may be capable of covering the distance between defensive lines in one to 1½ hours. Depending on the location of supporting helipads, aviation support must function quickly and effectively to mitigate this advance, particularly should the enemy attempt to flank or encircle the defenders using ground and air-assault forces.<sup>30</sup>

Thus, in a maneuver defense, defending troops displace from line to line both deliberately and when forced. The enemy organizes pursuit with the interdiction of routes of withdrawal and attacks from the flanks and rear. These actions require separate fire support in which army aviation units are assigned to support covering-force subunits and rear guards, to engage flanking detachments and to slow the rate of pursuit. In certain sectors, maneuver will be combined with blocking and employment of flanking and raiding detachments.<sup>31</sup>

## Conclusion

In conventional maneuver war under nuclear-threatened conditions, maneuver defense leading to a positional defense seems most likely to Russian theorists and planners. The preceding example is conducted on fairly open terrain, and the distances and dispositions will change with the terrain.

Skilled maneuver defense is designed to destroy enemy systems at long range and then withdrawing without becoming decisively engaged. Aviation and artillery are key to this long-range destruction but do not work the same target simultaneously. Artillery usually fights the enemy in front of the ground formation, while aviation fights any enemy trying to flank or encircle the defenders.

A key target for both aviation and artillery is mobile enemy air defense. The Soviets and now the Russians have long worked on developing a system that could detect, target and destroy high-priority targets in

near-real-time. The Russian reconnaissance-fire complex now links reconnaissance assets with a command and fire-direction center with dedicated artillery, missiles and aviation for destruction of priority enemy targets in near-real-time. This system is tied in with the aviation and maneuver headquarters and will be involved in the maneuver defense when appropriate.

Maneuver defense requires close coordination between fires and maneuver. Maneuver-force tactical training to support it will probably include mutual covering, withdrawal and counter-attack drills. Engineers should train in rapid obstacle placement and movement support to support this defense. Artillery battalions should more often fire in support of individual maneuver battalions than as a group. Artillery batteries should often be attached to maneuver companies.

Widespread camouflage discipline and use of corner reflectors are probable. Push-supply-forward should be expected, and evacuation collection point establishment should be part of maintenance and medical training. Battle-damaged systems need to be immediately repaired or evacuated in situations where terrain is being traded for time and advantage.

Maneuver defense is appropriate to combat conducted in Russia or on its southern and western boundaries. It is again part of Russian military theory and practice.

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## Notes

<sup>1</sup> P.A. Zhilin, Отечественная Война 1812 года [**The Fatherland War of 1812**], Moscow: Nauka, 1988.

<sup>2</sup> Ibid. Austria 1805 and Prussia 1806.

<sup>3</sup> Lester W. Grau and Michael Gress, **The Red Army Do-It-Yourself Nazi-Bashing Guerrilla Warfare Manual (The Partisan's Companion)**, Havertown, PA: Casemate, 2010. Translation and commentary of the 1943 Soviet edition, Спутник Партизана, used to train partisans to fight the Nazis.

<sup>4</sup> David M. Glantz and Jonathan House, **When Titans Clashed: How the Red Army Stopped Hitler**, Lawrence, KS: University Press of Kansas, 1995. This book remains the premier short history of the Soviet Union's defense and series of operational counterstrokes that defeated Germany in World War II.

<sup>5</sup> Ministry of Defense of the Russian Federation, Манёвренная оборона, Военный энциклопедический словарь в двух томах [**Military Encyclopedic Dictionary in Two Volumes**], Volume II, Moscow: Ripol Klassik, 2001.

<sup>6</sup> Department of the Army, "Chapter 10: the Mobile Defense," Field Manual 3-90, **Tactics**, Washington, DC: U.S. Government Publishing Office, July 2001.

<sup>7</sup> Ibid. "Units smaller than a corps do not normally conduct a mobile defense because of their inability to fight multiple engagements throughout the width, depth and height of the [area of operations] while simultaneously resourcing striking, fixing and reserve forces." This is not to say that Russian army groups would not conduct maneuver defense, nor that their concepts will differ radically from those of a U.S. corps. Rather, the training and planning for such is at lower level in the Russian force.

<sup>8</sup> Ministry of Defense of the Russian Federation, Боевой Устав Сукопитных Вонск, Часть 2 (Батальон Рота) [**Ground Troops Field Manual, Part 2 (battalion, company)**], Moscow: Voenizdat, 2013. This is a major change since Stalin's infamous Order 227 issued July 28, 1942: "Не шагу назад" ["not one step backward"] – which condemned thousands of Soviet soldiers to die needlessly in positional defense. In 2009, V.I. Popov in his book Боевой Устав Сукопитных Вонск, Часть 2 (Батальон Рота) stated that positional defense was the primary defense used, but the 2011 field regulations reversed this. Since then, it is consistent

that maneuver defense is the major type used; the 2013 and 2014 field regulations both state that maneuver defense is the basic form of defense.

<sup>9</sup> The armies of medieval Russia were primarily cavalry forces maintained by boyars (nobility) augmented by peasants, who fought on foot.

<sup>10</sup> **Editor's note:** The Russian civil war (Nov. 7, 1917, to June 16, 1923) occurred in the former Russian Empire (the last tsar, Nicholas II, abdicated March 15, 1917) immediately after the two Russian revolutions of 1917. The two largest combatant groups were the Red Army, fighting for the Bolshevik form of socialism led by Vladimir Lenin, and the loosely allied forces known as the White Army, which included diverse interests favoring political monarchism, capitalism and social democracy. Also, rival militant socialists, as well as non-ideological Green armies, fought against both the Reds and the Whites. Thirteen foreign nations intervened against the Red Army, notably the former Allied military forces from World War I with the goal of re-establishing the Eastern Front. Three foreign nations of the Central Powers also intervened, rivaling the Allied intervention with the main goal of retaining the territory they had received in the Treaty of Brest-Litovsk.

<sup>11</sup> A. Shelomskiy and D. Maksimov, Маневренная оборона: История и современность [**Maneuver Defense: History and Contemporaneity**], Армейский сборник [**Army Digest**], May 2020.

<sup>12</sup> Glantz and House.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Lester W. Grau, "Reorganizing for Battalion-level Combat," **Military Review**, December 1989, <https://apps.dtic.mil/sti/pdfs/ADA216368.pdf>.

<sup>17</sup> A. Shelomskiy and D. Maksimov.

<sup>18</sup> Ibid.

<sup>19</sup> Lester W. Grau and Charles K. Bartles, **The Russian Way of War: Force Structure, Tactics and Modernization of the Russian Ground Forces**, FMSO, 2016.

<sup>20</sup> Ibid.

<sup>21</sup> D. Kalachev, "Оборона-тоже маневр: Мотострелковый батальон и маневренная оборона" ["Defense is Also Maneuver – the Motorized Rifle Battalion and Maneuver Defense"], Армейский сборник [**Army Digest**], October 2016.

<sup>22</sup> Lester W. Grau, "Restructuring the

Tactical Russian Army for Unconventional War," *Red Diamond*, February 2014.

<sup>23</sup> Ministry of Defense of the Russian Federation, "Очаговая Оборона" ["Frag-mented Defense"], *Military*

*Encyclopedia* [Военная Энциклопедия], Vol. 6, Moscow: Voenizdat, 2002.

<sup>24</sup> Grau and Gress.

<sup>25</sup> A. Artemyev, "Поддержка с воздуха: Армейская авиация в маневренной обороне сухопутных войск" ["Air Support: Army Aviation in Ground-Troops Mobile Defense"], Армейский сборник

[*Army Digest*], August 2017.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

<sup>28</sup> The figures and their supporting text were originally published in Lester W. Grau and Charles K. Bartles, "Russian Aviation in Support of the Maneuver Defense," *Aviation Digest*, October-December 2018 issue; [https://www.rucker.army.mil/aviationdigest/assets/archive/AVN\\_DIG\\_2018\\_10-12.pdf](https://www.rucker.army.mil/aviationdigest/assets/archive/AVN_DIG_2018_10-12.pdf).

<sup>29</sup> Artemyev.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

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# Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

**LARIMER, SMITH CPL**  
Unit: Company G, 2nd Ohio Cavalry. Place and date of action: Sailors Creek, VA, April 6, 1865. Entered service: Columbus, OH. Born: Richland County, OH. Date of issue: May 3, 1865. Citation: Capture of flag of GEN Kershaw's headquarters.

**LESLIE, FRANK PVT**  
Unit: Company B, 4th New York Cavalry. Place and date of action: Front Royal, VA, Aug. 15, 1864. Born: England. Date of issue: Aug. 26, 1864. Citation: Capture of colors of 3rd Virginia Infantry (CSA).

**LOCKE, LEWIS PVT**  
Unit: Company A, 1st New Jersey Cavalry. Place and date of action: Paines Crossroads, VA, April 5, 1865. Entered service: Jersey City, NJ. Born: Clintonville, NY. Date of issue: May 3, 1865. Citation: Capture of a Confederate flag.

**LONSWAY, JOSEPH PVT**  
Unit: Company D, 20th New York Cavalry. Place and date of action: Murfrees Station, VA, Oct. 16, 1864. Born: Clayton, NY. Date of issue: Unknown. Citation: Volunteered to swim Blackwater River to get a large flat used as a ferry on other side; succeeded in getting the boat safely across, making it possible for a detachment to cross the river and take possession of the enemy's breastworks.

**LORISH, ANDREW J.**  
Rank and unit: Commissary sergeant, 19th New York Cavalry (1st New York Dragoons). Place and date of action: Winchester, VA, Sept. 19, 1864. Born: Nov. 8, 1832, Dansville, Steuben County, NY. Date of issue: Sept. 27, 1864. Citation: Amid the enemy he grabbed the flag from a color bearer, who then called for help. When the bearer's comrades were readying their rifles, he dashed directly at them, securing their disarming. As he rode away, the Confederates picked up their guns, firing at the captor of their flag.

*The cavalry squadron in Korea is the eyes and ears for U.S. Forces Korea's counterfire task force (CFTF), which is designed to defeat the artillery threat in North Korea. The squadron is the main organization available to the CFTF commander for his reconnaissance needs. By leveraging information gained from conducting Phase 0 reconnaissance, the cavalry squadron provides an advantage in complex terrain.*

*The advantage in Korea is the ability to train where one fights. Due to the megacity environment, the terrain changes constantly; buildings are constructed in open areas and the road networks change frequently. It is paramount that troops maintain a thorough understanding of the area where they will operate. Seasonal change affects rural terrain – for instance, Korean farmers flood their rice crops, making the terrain severely restrictive for heavy combat platforms during spring and summer. Those same fields become frozen in winter and make this terrain usable for combat operations. Finally, the terrain is changing from rural to urban as 25 million people live in and around the CFTF's area of operations.*

*As the squadron commander, I expected troops and platoons to constantly conduct Phase 0 reconnaissance patrols to update observation post (OP) locations, link-up locations, changes in terrain, fording sites, patterns of life and changes in concealment based on seasonal effects. Being able to train and conduct reconnaissance where we would fight gives us an advantage over the enemy and must be seized. I expected our platoons to go to their designated battlespace without maps, just as they would in their hometown. For example, in driving to Wal-Mart the first couple of times in a new location, you might use Google Maps, but after that the route is committed to memory.*

*We had the same opportunity in Korea, and this is how I defined Phase 0 reconnaissance. Conducting effective Phase 0 reconnaissance allows the cavalry squadron to achieve its purpose: to provide accurate and timely information to the brigade commander so he can make decisions ahead of the threat. Phase 0 reconnaissance needs to be seized as the rotational brigade combat teams continue conducting rotations to Korea, Europe and Kuwait. MG Scott D. McKean constantly taught us to train to ensure "we can do the things we say we can do," and Phase 0 reconnaissance ensures the cavalry squadrons are in a position to fight tonight, and keep fighting until we win. –LTC Greg McLean, commander, 2<sup>nd</sup> Squadron, 13<sup>th</sup> Cavalry Regiment, 3<sup>rd</sup> Armored Brigade Combat Team (ABCT), 1<sup>st</sup> Armored Division*

# Cavalry Operations in the Republic of Korea: Phase 0 Reconnaissance

by CPT Colton C. Parr and  
CPT Andrew Robichaud

Today there are many adversaries in locations across the globe that have the potential to erupt into armed conflict. Many of these locations are identified as areas of interest for the United States which, if engulfed in conflict, would destabilize the region and disrupt partnered and allied nations. As these potential conflict areas are identified, it is important to understand as much about the adversary and location as possible to be in the best position to react should diplomacy or military deterrence fail.

This is where Phase 0 reconnaissance becomes a critical factor in the United States' ability to effectively respond should armed forces be required to deploy to at-risk areas. This is true for U.S. forces deployed to deter conflict as well as for U.S. forces deployed to respond to an ongoing conflict. The more detailed information that can be collected on the adversary, operational environment, terrain, infrastructure, population and weather before the

commencement of hostilities, the better prepared combat forces will be.

This is the role of Phase 0 reconnaissance. Reconnaissance during this phase can answer critical information requirements concerning each of the preceding factors before U.S. forces are engaged in large-scale operations, and it has the ability to drastically increase the effectiveness of an armed response against an adversary.

## Phase 0 examples

Examples of the importance of Phase 0 reconnaissance can be seen throughout history. During the Korean War, a detailed understanding of the massive tidal range around Incheon allowed U.S. forces to successfully conduct an amphibious assault that dramatically reversed the course of the war. Without this information, the assault would have been much more difficult.

The amphibious operation during the Battle of Gallipoli during World War I also highlights the importance of Phase 0 reconnaissance but in a negative manner. Lacking updated maps

and information regarding the coastline and water depth, the amphibious landing parties struggled to get ashore to their assigned landing zones. This resulted in the deaths of many Soldiers, as the enemy engaged their landing craft as they searched for a clear route to the beaches. Many other Soldiers drowned or were killed by machinegun fire while attempting to wade ashore in deep water.

## Phase 0 recon's purpose

Phase 0 reconnaissance can take place in many different forms – from satellite imagery, to identifying the locations of enemy missile systems, to scouts on the ground collecting information on road networks and the local population. Regardless of the method, the goal of reconnaissance is still the same: to answer critical intelligence requirements that leaders need to make the most informed decisions about when and how to employ U.S. forces and capabilities.

When compared to reconnaissance performed in other phases of the

operation, Phase 0 has the distinct advantage of being conducted in the absence of flying bullets. This dramatically increases the freedom of maneuver scouts on the ground enjoy and allows them to conduct operations that would otherwise have been much more difficult.

In many situations, conducting Phase 0 reconnaissance enables the collection of detailed information over the course of a long period. U.S. forces stationed in Germany as a deterrent to Soviet aggression were able to collect information on infrastructure, terrain and adversary positions for years, making them intimately familiar with the area they could be required to fight in.

The freedom of maneuver possible during Phase 0 is also dependent on host-nation governments. The local government's rules and regulations concerning the movement of U.S. forces within their country can either be restrictive or permissive to U.S. forces operating there. Regardless of these rules, it is important to abide by them rather than risk damaging relations with the host-nation government, which may lead to increased restrictions.

Phase 0 reconnaissance must begin with a route reconnaissance of both the identified primary and alternate routes. There are two main purposes for conducting these route recons. The first is based on painting the picture for the supported unit. By conveying information on bridges, canalizing portions of the route and locations with enough clearance to enable convoys to turn around, scouts will enable their supported unit to be able to choose the most effective route. Also, lateral routes, bypasses to bridges and the general level of civilian traffic must be identified during Phase 0 to reduce friction on the route during the actual operation.

The second purpose is to build familiarity with the route within a scout's own organization. The officers, non-commissioned officers and drivers in the organization must know how to reach the reconnaissance objectives with the same degree of familiarity as they have with driving to their local

grocery store. Also, route reconnaissance should be conducted at different times of the day to establish a pattern for civilian traffic based on time. This information will enable a more accurate estimated time of arrival and will help produce specific windows of time that are optimal for movement.

## Transitioning

Upon reaching the reconnaissance objective(s), it is essential to transition to an area reconnaissance to develop understanding of the potential enemy as well as the hydrological and geographical features. Unlike an area reconnaissance in the more traditional "tactical" sense, these area recons will generally be at either the key-leader level or as part of a reduced force. This must be decided carefully based on the level of covertness the force must maintain to prevent revealing portions of its plan via observation by a potential threat.

Within the reconnaissance objective(s), the first priority is to determine primary avenues of approach, infiltration routes and retrograde routes. This can be determined through both a mounted and a dismounted reconnaissance, with the patterns of life within the reconnaissance objective(s) factored in to determine the suitability of each route at different times of day.

The next focus should be on the location of primary, alternate and subsequent battle positions for the supported unit in addition to potential locations for the placement of command-and-control and sustainment nodes. Terrain must be understood and the effects accounted for to provide an advantage to the supported unit and enable achievement of its task and purpose.

It is important to note that during this portion of an operation, enemy contact is unlikely. The recon element must use this time and maneuver space to its advantage by carefully planning a transition from reconnaissance to security.

After identifying suitable locations for the supported unit to achieve its tactical task and purpose, the focus can switch to how to provide area security

to provide the protected force adequate time and maneuver space. The security plan must incorporate both mounted and dismounted OPs that use the terrain to advantage. Mounted OPs should be positioned to make full use of their long-range optics, while dismounted OPs can provide security within identified avenues of approach in restricted or severely restricted terrain.

A plan for when to transition from short-duration to long-duration mounted OPs must also be carefully considered to provide maximum security while the supported unit initially occupies the identified positions, and a specific trigger must be identified to transition to long-duration OPs to enable the recon element to be able to sustain its tempo. The recon element must identify all friendly OPs and submit no-fire-area requests to mitigate the possibility of fratricide. Also, the recon element must fully understand and be able to paint the security plan to the supported unit by identifying the location of friendly adjacent units while integrating any host-nation forces (HNF) into the security plan.

Transitions are periods of natural friction during any military operation. Major transitions during Phase 0 reconnaissance include a transition from route recon to area recon, a transition from area recon to area security, and the occupation of the reconnaissance objective by the supported force. To mitigate the risk of fratricide and to maintain the desired tempo, rapid but effective linkups must be conducted between adjacent friendly units and with the HNF. During Phase 0 reconnaissance, it is vital to develop and rehearse linkup procedures so they are readily understood by all participants. Far- and near-recognition symbols must be established, and the equipment available within HNFs must be understood to create a feasible plan. Operations graphics must be shared during Phase 0 to create a common understanding and to facilitate a quick linkup either in person or via radio.

An example of validated linkup procedures performed within the Korean Theater of Operations is contained in Table 1. It is important to note that this is not all-inclusive and will require

TASKS		STATUS
<b>Prior to link-up</b>		
Receive link-up time, place, unit, command/support relationship (operations order, operations plan)		
Coordinate in-person with receiving unit (if possible)		
Establish liaison (if applicable)		
Establish far recognition (establish comms in accordance with primary, alternate, contingency and emergency plan)		
<b>Coordination while moving to link-up point</b>		
Number/type of friendly vehicles on both stationary and moving elements		
Status of routes to link-up points; updates to rally points, chokepoints and checkpoints		
Friendly (joint/combined) forces in area, and location and disposition of forces		
Confirm communication information (frequencies, call signs, Joint Capabilities Release identification and chatroom)		
Verify fire-control measures or signals in effect		
Friendly adjacent units by location		
Provide/receive intel updates		
Finalize link-up location and rally point as well as alternate location due to contact if different from operation plan tactics, techniques and procedures and GTW positions		
Confirm near-recognition signal (day and night)		
<b>Day</b> (U.S. to U.S.) VS-17 panel with pink side facing out (RoK security forces/U.S.) Green flag/orange VS-17 panel	<b>Night</b> (U.S. to U.S.) P: infrared strobe/infrared panel A: red flashlight/chem light (RoK security forces to U.S.) green chem light/green flashlight	
<b>Coordination at link-up point</b>		
Establish local security		
Provide update on any constraints, limitations or restrictions that will affect mission		
Exchange graphics and brief active fire-control measures		

**Table 1. Phase 0 recon checklist.**

adjustment based on the supported unit’s capabilities and mission set.

Enablers are simply any asset or unit that can be used to aid mission success. Reconnaissance units must understand enabler capabilities, limitations and sustainment requirements to employ them effectively. The incorporation of these enablers is vital to create shared understanding for the operation and to allow the subject-matter experts, the enablers themselves, to provide bottom-up refinement for the plan. By having physical access to the terrain before execution of the operation, enablers can select the optimal location to ensure survivability and achieve the desired effects. Reduced-force rehearsals can be conducted on-site to enable early identification of friction points within the

plan, and defined triggers can be established to ensure that the right enabler is at precisely the right place, at the right time, to provide the right effect for the situation.

Phase 0 reconnaissance offers a rare opportunity to develop a detailed plan on the very terrain on which operations will be executed. Success enables capturing detailed information on the terrain, infrastructure, threat and societal aspects within an area of operations before the start of hostilities. Of equal importance, success enables the creation of shared understanding among the reconnaissance force, adjacent friendly forces and HNFs. Rehearsals among the aforementioned elements and additional assigned enablers can take place on the actual terrain where a planned

operation will take place. Time is one of the most precious resources that we as reconnaissance leaders have, and it must be put to good use!

As Michael Elliot-Bateman so fittingly said, “If we arrive, as our forefathers did, at the scene of battle inadequately equipped, incorrectly trained and mentally unprepared, then this failure will be a criminal one because there has been ample warning.”<sup>1</sup>

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Wainwright, AK; and reconnaissance-platoon leader, Crazyhorse Troop, 5-1 Cav, Fort Wainwright. CPT Parr's military schooling includes Armor Basic Officer Leader's Course (ABOLC), Army Reconnaissance Course (ARC), Airborne School, Cold Weather Leader's Course, Maneuver Captain's Career Course (MCCC), Cavalry Leader's Course (CLC) and Bradley Leader's Course. He holds a bachelor's of arts degree in international relations from Middle Tennessee State University. CPT Parr's awards and honors include the Parachutist's Badge and the bronze-level Order of Saint George.

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## Notes

<sup>1</sup> Michael Elliot-Bateman, *Defeat in the*

*East*, London: Oxford University Press, 1967.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team

**ABOLC** – Armor Basic Officer Leader's Course

**ARC** – Army Reconnaissance Course

**CLC** – Cavalry Leader's Course

**CFTF** – counterfire task force

**HHT** – headquarters and headquarters troop

**HNF** – host-nation forces

**MCCC** – Maneuver Captain's Career Course

**OP** – observation post

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# Robots and Reconnaissance: We May Never Be Stealthy and Deliberate Again

by COL J. Frederick Dente and  
CPT Timothy Lee

From iron blades and crossbows to armored vehicles and precision-guided munitions, the character of war is constantly evolving. Nations expend massive amounts of energy and capital to present new dilemmas for adversaries across multiple domains. Often these technical advances occur in a vacuum, and we fail to develop the tactics and doctrine to fully leverage the new capability. At an even more fundamental level, we often fail to examine how these new technical capabilities change the underlying assumptions about the character of war in the first place.

Semi-autonomous ground-based robots, once a dream of the past, are the next change in warfare the U.S. military and its adversaries are developing to gain and maintain dominance on

the battlefield. However, the proliferation of advanced technology such as the Robotic Combat Vehicle (RCV) on the battlefield at the lowest level will fundamentally change the way Soldiers fight tomorrow's battles, and it will call into question the very doctrine and methodology the Army uses to train its warfighters. While there are varying opinions on whether the use of RCVs will ultimately enable or hinder reconnaissance and security (R&S) operations, the Army must continue to address the inadequacies of its ability to execute ground R&S operations to fight and win the next major ground war.

This article will highlight the foreseeable changes in doctrine that must be considered by first examining the advantages and disadvantages of three long-standing ideas in cavalry doctrine and then describe how these ideas will inevitably change with the integration

of the RCV to effectively move forward into the 21<sup>st</sup> Century.

## Tactical mobility

Cavalry formations have long served as a catalyst to transform the concepts of maneuver warfare into a battlefield capability. As maneuver is the essence of U.S. fighting doctrine, it requires the means to seize or retain the initiative and to create or exploit offensive opportunities.

Commanders require a high degree of situational awareness and the time to mass and concentrate superior combat power against the enemy at the right time and place for maneuver to be successful. For centuries, the power of mobility has enabled cavalry formations to accomplish this task. By remaining mobile and retaining freedom of maneuver, cavalry formations can provide a continuous flow of combat information and intelligence to



commanders, helping them cope with uncertainty, make contact under favorable conditions, prevent surprise and facilitate timely decision-making. Serving as the brigade commander's "eyes and ears," cavalry formations can deploy quickly, fight for information and secure key terrain far in front of the main body to provide it with reaction time and maneuver space.

However, commanders are frequently forced to sacrifice the amount of detail collected about the operational environment to maintain their speed, as formations never seem to maneuver fast enough. Moving quickly increases the risk by forcing Soldiers to potentially expose themselves to enemy contact while trying to develop the situation. Yet moving more slowly may increase the risk to the mission, as the cavalry may not secure key terrain before opposing forces begin their initial attack. This problem has plagued commanders for centuries.

## Stealth

While reconnaissance doctrine includes the capacity for cavalry formations to fight for information, the best way to perform reconnaissance has long been argued to be by stealth. By remaining hidden and maximizing the use of cover and concealment to conduct R&S tasks, cavalry formations can detect and observe enemy developments well forward of the brigade combat team's (BCT) main body while also retaining their mobility. Stealthy reconnaissance prevents the cavalry formation from becoming decisively engaged and greatly enhances its survivability. By only engaging the enemy when absolutely necessary, cavalry formations can gain and maintain contact with the enemy from a position of relative advantage before executing a reconnaissance or battle handover as the relative priority between BCT elements shifts.

Yet despite these advantages, even stealthy reconnaissance requires an ability to survive a chance contact or an ambush that may occur with little warning. Historical examples such as Operation Desert Storm provide an excellent study for this. Divisional cavalry organizations at the time lacked the combat power to conduct their traditional R&S roles. Because tanks were

not organic to the squadrons, many commanders were forced to task-organize tank companies from the maneuver brigades to provide the division's primary reconnaissance asset with the resources needed to fight for information and survive on the battlefield.

The experience in Desert Storm reinforced the lesson of the North Africa campaign during World War II – effective reconnaissance must often include fighting. Commanders in the deserts of North Africa in 1943 suffered heavy casualties while employing light-reconnaissance formations to fight for information. With that historical lesson in mind, some commanders in the deserts of Iraq in 1991 simply chose not to use them.

## Economy-of-force

Cavalry formations have long protected and preserved the BCT's combat power during security operations, allowing the commander time to decide where to concentrate forces. This time provided by cavalry formations provides the BCT with a critical capability based on a principle of war: economy-of-force. Economy-of-force is the principle of employing all available combat power in the most effective way possible. The flexible capabilities of the cavalry allow commanders to conserve the combat power of their BCTs to use at a time and place of their choosing. By expending minimum essential combat power on secondary efforts, commanders can maximize the most combat power on primary efforts. In other words, by serving in an economy-of-force role, cavalry prevents premature deployment and attrition of combat power before the BCT reaches its objective.

However, because an economy-of-force, by definition, is to expend the minimum amount of combat power on secondary efforts, the ability of a cavalry formation to shape the battlefield, influence key actors and consolidate gains and efforts is severely limited. Although properly task-organized cavalry formations can produce effects that far outweigh the diversion of combat power from the main body, dedicating these additional capabilities comes at the risk of fewer capabilities for potential follow-on

operations. As a result, cavalry formations often find themselves limited in what they can do for the BCT, reacting to the enemy instead of creating the conditions to create and exploit the initiative.

## Integration of RCV

The proliferation of the RCV on the battlefield at the lowest level will fundamentally change these long-standing core beliefs in cavalry doctrine. They will potentially enable commanders to push past these previous restrictions that have plagued BCTs for centuries while also imposing restrictions of their own.

First, commanders have been frequently forced to sacrifice the amount of detail collected about the operational environment to maneuver quickly; RCVs can effectively mitigate this gap entirely. Commanders, once limited not only by the enemy and terrain but also by the human dimension, both physically and mentally, now find themselves able to consistently maintain their overall operational tempo. Unlike their manned fighting vehicle (MFV) counterparts, RCVs are not limited by Soldiers' lack of sleep or endurance to maintain speed. The RCV can move ahead of the MFVs and quickly secure key terrain, while scouts can move more deliberately behind the forward-line-of-robots (FLOR) and forward-line-of-unmanned-aerial-vehicles (FLUA) to collect on terrain, civilian and even infrastructure information requirements. (See Figure 1.)

By allowing RCVs to make first contact with the enemy and secure key terrain in front of the BCT, commanders ultimately can mitigate both the risk to force and to mission that was previously identified. Yet, while the RCV does enable commanders to maintain tactical mobility, it comes with its own mobility limitations that will fundamentally change how reconnaissance doctrine, specifically intelligence preparation of the battlefield (IPB), is taught. Traditional instruction on IPB at the reconnaissance schoolhouse focuses on how to best use terrain and how to use intervisibility (IV) lines to conceal movement – whether mounted, dismounted or even aerial to retain a position of relative advantage.

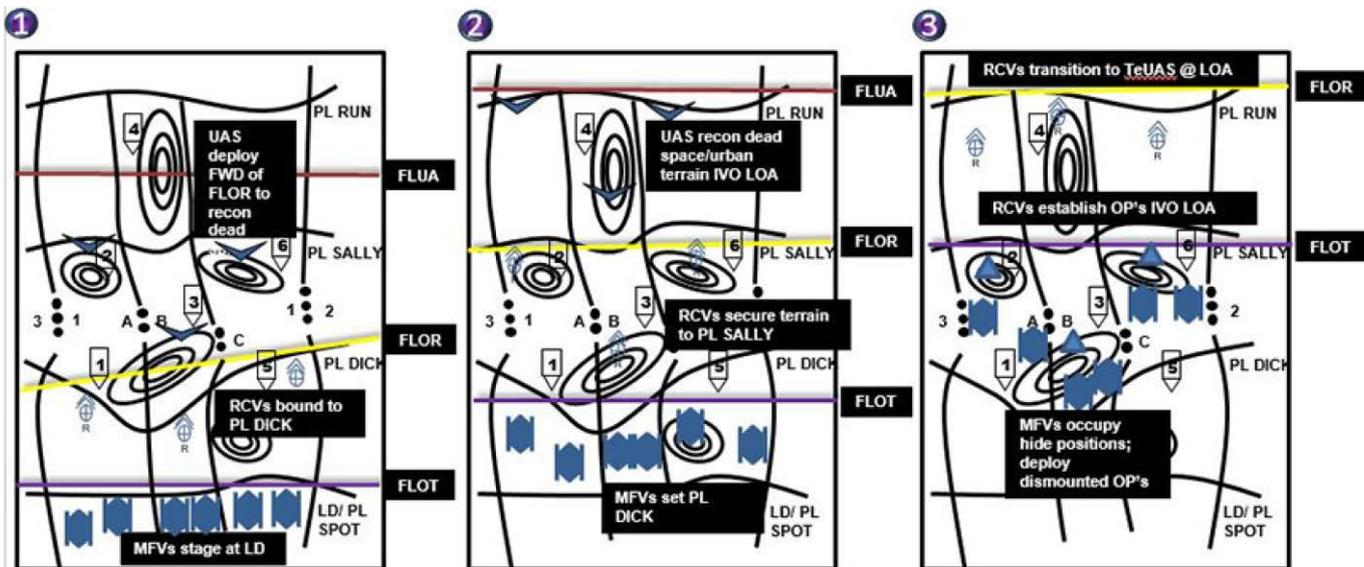


Figure 1. RCV zone reconnaissance.

However, as stated, RCVs are being used in front of formations to reduce risk and increase situational awareness. As a result, IPB on the type of terrain that best suits robots may need to be more emphasized than IPB for traditional mounted and dismounted maneuver. Furthermore, as these RCVs must operate within line-of-sight to the control vehicle, a greater emphasis must be placed on the three-dimensional aspect of the terrain and how it affects not just frequency-modulation communications but also connectivity from the RCV to the control vehicle. This essential change in the way scouts are taught IPB may not only be relevant, but it's absolutely necessary.

Finally, because the basic capabilities for the RCVs used by the Army's Next Generation Combat Vehicle-Robotic Combat Vehicle (NGCV-RCV) team include artificial intelligence-assisted target detection/recognition and anti-tank guided-missile capability, the ability for a cavalry formation to fight for information is greatly increased. Commanders may never need to operate "stealthy" again, as the RCV essentially mitigates the risk for a commander to expose his Soldiers to enemy direct fire. The RCV ultimately provides the squadron commander with his own reaction time and maneuver space and negates the need to be "stealthy." Whereas current doctrine uses dismounts in front of vehicles in a covert manner to make first contact

with the enemy, the RCV enables the commander to make first contact with robots. By operating in a more "forceful" capacity, these RCVs develop the situation through action and can potentially suppress or fix the enemy while the commander maneuvers his scouts to a position of relative advantage to engage and destroy the enemy. Also, the RCV provides the cavalry commander with more firepower while still maintaining economy-of-force to prevent decisive engagement.

However, despite these advantages, RCVs operating in a "forceful" manner are not without their own inherent limitations. While future RCV capabilities must adhere to stringent requirements and at least mirror their manned counterpart in terms of mobility and thermal signature, using RCVs ahead of Soldiers and MFVs in a "stealthy" manner may not even be possible. While the RCV may possess the same or even less thermal and noise signature of their manned counterparts, it becomes extremely difficult to mimic the same physical and electromagnetic signature as a dismounted scout moving in front of his vehicle to observe an IV line. Consequently, the cavalry commander may never actually be able to specify "stealthy" as a reconnaissance tempo because he must account for the RCVs. The impacts of this change would be astronomical; forcing cavalry formations to operate solely in a forceful tempo increases the risk that RCVs

were designed to mitigate. Furthermore, organic task-organization to cavalry formations may also need to be reconsidered, as they may need more firepower to serve only in a forceful tempo.

## Conclusion

When rifled muskets were first introduced, no army recognized how the dramatic increase in range and lethality would impact massed formations of infantry. Few armies recognized the impacts of the telegraph and railroad on modern war until it was too late. Too often, our tactics and doctrine lag far behind the dramatic advances in lethality and mobility. Like these previous advances, the integration of RCVs into our scout platoons and cavalry troops must fundamentally change the way leaders conduct R&S operations in the near future.

To win the next major ground war, our R&S doctrine must adapt. Not only should we incorporate these new systems into our current organizations and our existing training models, but we must also be prepared to challenge the underlying assumptions that drive our current tactics. It is only through this rigorous and professional dialogue that we can fully leverage the new capabilities and opportunities the RCV offers.

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CPT Timothy Lee is the Cavalry Leader's Course (CLC) director, assigned to 3<sup>rd</sup> Squadron, 16<sup>th</sup> Cavalry Regiment, 316<sup>th</sup> Cav Brigade, Fort Benning, GA. His previous assignments include CLC instructor, 3-16 Cav; commander, Headquarters and Headquarters Troop, 6<sup>th</sup> Squadron, 1<sup>st</sup> Cav Division,



**Figure 2. The Army's Ground Vehicle Systems Center and NGCV cross-functional team demonstrate the mission-enabling technologies demonstrator and RCV surrogate at Camp Grayling, MI, Aug. 22, 2019. (From a video by Douglas Halleaux, Combat Capabilities Development Center's Ground-Vehicle Systems Center)**

Fort Bliss, TX; commander, Troop E, 6-1 Cav, Fort Bliss; assistant S-3 (Plans), 6-1 Cav, Fort Bliss; and platoon leader, Troop C, 1<sup>st</sup> Squadron (Airborne), 40<sup>th</sup> Cav, Fort Richardson, AK. CPT Lee's military schools include CLC, Ranger School, Maneuver Captain's Career

Course and Airborne School. He holds a bachelor's of science degree in systems engineering from the U.S. Air Force Academy. CPT Lee's awards include the Bronze Star Medal (with oak-leaf cluster) and Meritorious Service Medal.

### ACRONYM QUICK-SCAN

**BCT** – brigade combat team  
**CLC** – Cavalry Leader's Course  
**FLOR** – forward-line-of-robots  
**FLOT** – forward-line-of-own-troops  
**FLUA** – forward-line-of-unmanned-aerial-vehicles  
**FWD** – forward  
**IPB** – intelligence preparation of the battlefield

**IV** – intervisibility  
**IVO** – in vicinity of  
**LD** – line of departure  
**LoA** – line of advance  
**MFV** – manned fighting vehicle  
**NGCV-RCV** – Next Generation Combat Vehicle-Robotic Combat Vehicle

**OP** – observation post  
**PL** – phase line  
**R&S** – reconnaissance and security  
**RCV** – Robotic Combat Vehicle  
**UAS** – unmanned aerial system



**Figure 3. RCVs on display at Camp Grayling, MI.**

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# Fire and Maneuver in the Cyberspace Domain

by COL Michael D. Schoenfeldt, CPT Matthew L. Tyree and CPT William Malcolm

The armored brigade combat team (ABCT) is the most lethal formation the world has ever seen; no other force can match the firepower and maneuverability an ABCT can bring to bear on the decisive-action battlefield. However, where our adversaries lack in attributes inherent to an ABCT, they are gaining the edge in areas that include cyber, signals intelligence (SIGINT) and electronic warfare (EW).

With that in mind, a dynamic strike by our adversaries to our communications and intelligence systems, digital and frequency modulation (FM), can be a catastrophic blow to ABCT operations. Protecting our communications, exploiting those of our adversaries and supplying maneuver commanders with real-time and actionable intelligence will determine the difference between victory and defeat.

Army EW and tactical SIGINT are progressing through significant updates and restructuring in an effort to meet

this threat. In the past, troop and company commanders had been assigned Prophet (a 24-hour, all-weather, near-real-time, ground-based, tactical SIGINT/EW capability organic to the BCT) and EW teams that, due to lack of necessity, planning or understanding, had been a shackle rather than an enabler to their operations. The Army had all but abandoned EW in 1993 after the end of the Cold War. During the height of counterinsurgency (COIN) operations in 2009, the EW branch was finally reinstated for counter-improvised-explosive-device jamming. The only contact many maneuver leaders had with EW during that time was with the bulky “dukes” that sat in the back of our vehicles.

Current global events have shown an emergence of both state and non-state actors who are not only capable of waging war on land but also of competing in the electromagnetic spectrum (EMS). To meet these new and complex threats, the Army is rapidly replicating the same environments to test leaders at the combat-training centers. Every echelon of our Army

must be ready to meet the rapidly changing world and be confident in their ability to “fire and maneuver” in the EMS.

## ‘A way’ to compete in EMS

During the past year, the Ironhorse ABCT of 1<sup>st</sup> Cavalry Division has recalled forgotten skills of the pre-Gulf War years, including a platoon called combat EW and intelligence (CEWI). CEWI was once one answer to competing in and gaining an advantage in the EMS of the Cold War. Some in the SIGINT and EW circles will tell you the two capabilities are like oil and water. Ironhorse views the two as sides of the same coin called information.

Information is the medium that links the purpose and direction of leaders to maximize the warfighting functions’ capabilities. Information is a living environment, and it needs to be analyzed much the same way as the physical one we are used to maneuvering in. There is key terrain in this environment such as radios and computer systems, as well as obstacles and avenues of approach that allow or prohibit access into the network. By fully accessing the information landscape, maneuver units can find new ways to exploit our adversaries to mass and concentrate “informational fires.”

To gain the edge in the information battlefield and show that EW and SIGINT are better together than apart, Ironhorse founded the “Wild Bill” CEWI platoon to be a true organic fire-and-maneuver unit in the cyberspace domain. Since its inception, Wild Bill has sensed, collected, found, jammed, destroyed and disrupted enemy information networks in tough and realistic environments. The line of effort that Wild Bill has created is now tied to cyber-electromagnetic activities (CEMA), which is in turn tied to the intelligence section (S-2) collection assets. This chain of information will leave our adversaries exposed and helpless in the

FIRES			EW			SIGINT																																						
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Figure 1. Current manning.

EMS. Wild Bill is not a one-size-fits all solution to mastering the cyberspace domain, but it does provide Ironhorse the ability to shape it.

## Creating Wild Bill

Wild Bill was not created overnight, nor is it complete. The platoon has grown through trial and error during complex training events. It was decided early that Wild Bill would primarily serve as the electronic reconnaissance platoon and the commander's eyes and ears in the EMS. It was tasked with sensing and direction-finding (DF)

enemy communications, answering priority intelligence requirements (PIR) and, when able, destroying or degrading enemy emitters with either lethal or non-lethal fires.

An experienced infantry lieutenant was chosen and instructed to lead, equip and train the organization. Wild Bill was provided a Bradley Fires-Support Team (BFIST) Fighting Vehicle to allow the platoon to rapidly prosecute unobserved fire missions. This distinct inclusion is what makes the Ironhorse CEWI platoon different from other EW or CEWI platoons of the past. It is

organically able of gathering targeting information from its sensors, rapidly clearing ground and digitally processing fire missions. The fires section makes Wild Bill a true fire-and-maneuver element rather than a simple collection asset.

To cover the electronics side of the formation, Ironhorse funneled all available military-occupation specialty (MOS) 17Es (EW specialists) and MOS 35P/Ns (cryptologic linguists/SIGINT analysts) to fill the ranks. These troopers operate host EW and SIGINT systems ranging from legacy and

Mission: Integrate and synchronize EW and SIGINT capabilities to maximize intelligence collection and enable the targeting of enemy emitters.	
Name	Number
<b>34-CO-3004</b>	<b>Conduct SIGINT collection</b>
34-TM-0700	Conduct voice communications intercept or radio DF at a collection site
34-TM-0701	Conduct voice communications intercept during movement
34-TM-0702	Process incoming SIGINT information
34-TM-0713	Conduct a SIGINT survey
34-TM-0724	Coordinate in determining tactical SIGINT taskings
34-TM-0800	Establish an ES collection site
34-TM-0820	Manage Prophet sensor missions
<b>13-CO-2019</b>	<b>Conduct EW</b>
13-TE-2012	Conduct EA
13-TE-2013	Conduct electronic protection
13-TE-2014	Provide EW support (ES)
13-TE-6019	Establish an EW site
<b>07-PLT-1342</b>	<b>Conduct tactical movement – platoon</b>
<b>07-PLT-3036</b>	<b>Integrate indirect-fire support – platoon</b>
06-SEC-5086	Observe friendly indirect fires

Table 1. Wild Bill METL.

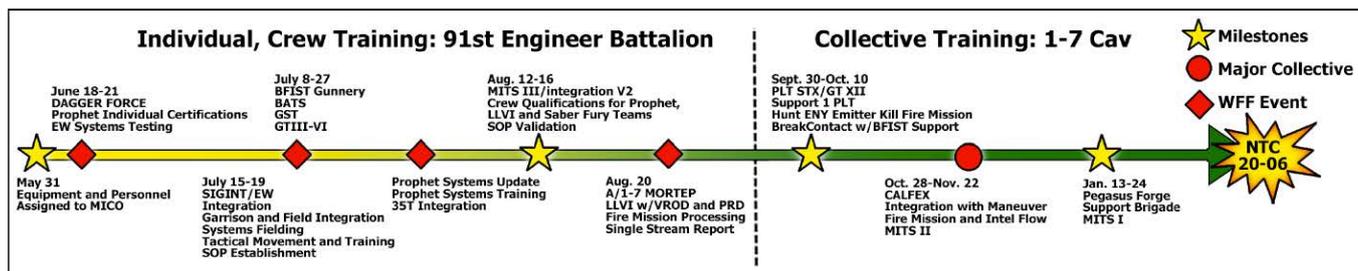


Figure 2. Training glidepath.

developing Army technologies to commercial-off-the-shelf (COTS) systems. The current arsenal includes Prophet, Sabre Fury (a modified version of the Duke V4/V5 EW system), EW Tactical Vehicle (EWTV), Versatile Radio Observation and Direction (VROD) system and the Herrick Pack. With the combination of systems and personnel from EW and SIGINT, the platoon also needs to delineate the legal and specialty differences between its troopers and equipment.

Wild Bill was initially assigned to the Ironhorse Military Intelligence Company, where a dedicated and informed SIGINT technician provided oversight and ensured the platoon remained in compliance with National Security Agency directives and procedures.

With an organizational structure and equipment assigned, Wild Bill's next task was to establish a modified table of organization and equipment (MTOE) and mission-essential task list (METL) to carry its troopers through individual, section and platoon training to meet their unique task and purpose. While training with a common understanding and nested purpose, the EW and SIGINT troopers began to integrate. Before long they were able to sense, find and report as a single unit.

The platoon applied these skills during the Wild Bill Gunnery Table XII platoon live-fire exercise and added the ability to shoot, move, communicate and accurately call for indirect fire. Following successful completion of their platoon-level gates, Ironhorse felt confident that Wild Bill could operate on the forward-line-of-own-troops (FLOT) and enable maneuver, intelligence and targeting.

## Integrating Wild Bill with ABCT operations

With the concept proofed, Wild Bill was ready to operate with maneuver units, but it was not yet fully understood how much the platoon could provide to commanders and the brigade. Due to its nature as electronic reconnaissance, Wild Bill was naturally attached to support the Ironhorse Reconnaissance Squadron, 1-7 Cav. Therefore, Wild Bill was tested during both the Ironhorse company-level combined-arms live-fire exercise

(CALFEX) operations and the brigade-level home-station decisive-action validation, Pegasus Forge V. During these complex operations, Wild Bill troopers revealed their unique capabilities and limitations as they were tasked to find, fix and destroy multiple emitters in the form of live and static opposing forces (OPFORs).

The Wild Bill leadership assisted maneuver commanders in planning during the orders process and during execution. The platoon semi-independently operated no more than one phase line behind the FLOT. The mission during these exercises was to provide the maneuver units with overwatch as they executed combat tasks; relay important combat information; and ultimately enable targeting and intelligence for leaders at echelon.

During the training events, the platoon proved its ability to integrate with maneuver units while also revealing its unique capabilities and limitations.

Wild Bill's main combat multiplier is its ability to conduct electronic-support (ES) operations, namely DF. Though this ability is limited on the move, when established in tactically and technically sound collection sites (hasty or deliberate) the platoon is able to sense, fix and destroy the enemy with speed and accuracy. Conducting CEWI requires understanding of how sensors receive signals from the EMS and how each sensor can mutually support the others through proper geometry. Much like an ambush, there are different formations that can be used to achieve the greatest geometry for an electromagnetic

kill zone. In general, a concave shape yields the greatest chance to fix a target, while a linear or convex shape yields a greater area to detect but limits the chance to establish a fix.

With a proper collection site set, the sensors of Wild Bill received specific EMS bands to observe known as "spectrum sectors of fire." These sectors of fire were prepared in advance and coincided with the enemy electronic order of battle the S-2 prepares that lays out both the enemy equipment and frequency sets that may appear to Wild Bill operators.

Once an enemy emitter is detected, the operator develops the echelon, potential location and activity of the source. Throughout six weeks of CALFEX iterations, Wild Bill sensed more than 50 emitters. These emitters are a combination of OPFOR push-to-talk radios and Stratomists. The Stratomist is a signal emitter that is capable of replicating a myriad of single-channel plain text (SC/PT) and frequency-agile (such as frequency hop) communications. Also sensed and reported were helicopter navigation systems and dozens of other "out of play" frequencies.

Active emitters present a general azimuth to their location, known as a line of bearing (LoB). Just like a resection in land navigation, multiple LoBs from multiple sensors will achieve a cut or a triangulated fix on an emitter. These cuts and fixes are then reported and actioned by the platoon or other echelons. Wild Bill developed a reporting scheme that allowed free passage of both time-sensitive combat intelligence and detailed intelligence that directly supported targeting. Many

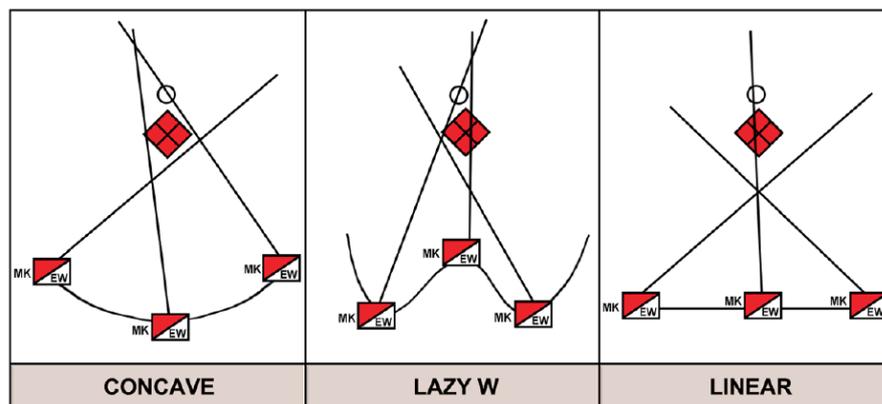


Figure 3. Collection-site formations.

Wild Bill SALT report	
Explanation	Example
<p>S: Enemy size</p> <p>A: Activities of enemy reported by sensors. Frequency of enemy mission.</p> <p>L: 8-digit grid or high-confidence LoB to specific named area of interest (NAI)/key terrain.</p> <p>T: date-time group (local).</p> <p>PIR: PIR answered.</p> <p>WB: Actions taken by Wild Bill Platoon.</p> <ol style="list-style-type: none"> <li>Call for fire</li> <li>Electronic attack</li> <li>UAS</li> <li>Maneuver-unit assistance</li> <li>Continue to observe</li> </ol>	<p>S: Enemy observation post.</p> <p>A: Observing downed vehicle, preparing to call chemical munitions. Frequency ###.###. 10 watts.</p> <p>L: PV 1234 5678.</p> <p>T: 1525L.</p> <p>PIR: #5, enemy preparing to use chemical munitions in NAI 1.</p> <p>WB: a – battalion mortars.</p>

Table 2. SALT report.



Figure 4. An M-ATV Prophet established in a collection site.

found emitters answered PIRs such as the location of high-value targets; chemical, biological, radioactive, nuclear and high-yield explosives targeting (commonly known as CBRNE); and obstacles.

Once the maneuver commander had this intel in hand, Wild Bill’s troopers would action their modified size, activity, location, time (SALT) report, which detailed the information gathered and the way-ahead to leaders at echelon.

### Fires: lethal and non-lethal

Wild Bill is free to prosecute the emitters with the lethal and non-lethal means available to it. Out of more than 15 digitally processed fire missions (both live and simulated), only one landed more than 100 meters from the target. Wild Bill even sensed and destroyed a live emitter with 120mm mortars from more than two kilometers away. While not as accurate as observed fires, Wild Bill was still able to achieve effects on the enemy and disrupt their operations.

Also available to Wild Bill is its non-lethal fires asset, electronic attack (EA). EA, “jamming,” against an adversary’s communications comes with an inherent risk to the jammer because of its EMS signature; essentially, it becomes like a flashlight in the dark to enemy sensors. Wild Bill had limited practice jamming, but when it did go “buzzer on,” it achieved effects on Stratomist and live targets during the CALFEX.

Due to the risk to the force, Ironhorse uses this capability deliberately and in conjunction with other CEMA effects at a decisive point. Stacking effects like these on top of one another creates an electromagnetic dilemma. During one portion of Exercise Pegasus Forge, after the enemy tactical-operations center was destroyed, Wild Bill conducted EA against enemy FM communications, furthering the OPFOR’s confusion and achieving dominance in the EMS.

### Capabilities and limitations

Wild Bill has carved a niche for itself by being able to search, find and destroy emitters in parts of the EMS. Overall, the platoon can see almost every signal in the very-high-frequency and ultra-high-frequency ranges. Within these frequency ranges, Wild Bill is very capable of searching, finding and destroying SC/PT emitters at ranges up to 10 kilometers. With more

open terrain than the Fort Hood Training Area, it is expected that the platoon can see and affect results much further.

For signals that Wild Bill is unable to prosecute directly, it has been able to “tip” to more Ironhorse assets such as the Shadow unmanned-aerial-systems (UAS) platoon or the brigade intelligence-support element. Wild Bill’s greatest strength is its ability to use these skills while operating on the FLOT. Unlike other EW and CEWI platoons, Wild Bill can conduct CEWI that directly enables maneuver, intelligence and targeting.

However, Wild Bill still remains limited in its ability to find and fix frequency agile communications, Joint Capabilities Release’s (JCR) signatures and emitters in the super-high-frequency range. While Wild Bill and its assets are not wholly at fault, it should be noted that their Darkhorse and foreign-adversary counterparts can do this with lethal accuracy.

Jamming communications is as much a capability as it is a limitation because it is largely untested at the BCT level. As stated, it comes with a risk to the force that would need to be mitigated. Wild Bill will strive to find innovative ways around these complicated problems because its troopers understand that the lives of all Ironhorse troopers could depend on their ability to see and shoot first in EMS.

## Improving Wild Bill

As stated, Wild Bill is not a complete product yet, and Ironhorse will continue to seek upgrades to its equipment, manning and vehicles to give it the edge in the electromagnetic and on the real-world battlefield. The current arsenal of sensing and jamming equipment is plagued with three major issues that need to be addressed if other CEWI or EW platoons are to be successful.

The first issue is the antennas attached to the Wild Bill sensors. The sensors housed in Wild Bill are some of the best available to any BCT. However, the antennas lack the sensitivity to detect emitters at ranges necessary to support large-scale combat operations (LSCO). An ABCT like Ironhorse is capable of affecting up to 30



**Figure 5. A BFIST provides security for the EWTV.**

kilometers with both organic and attached fires assets, and it has a line-of-sight of 20 kilometers with a BFIST’s Fire-Support Sensor System A3. With more sensitive antennas and systems, Wild Bill will be able to sense enemy reconnaissance and main-body elements up to 30 kilometers and to provide early warning before the enemy moves into line-of-sight.

The second issue is the limited jamming capability of the jammers Wild Bill has at its disposal. The EWTV and Saber Fury jammers are the very same bulky dukers used during COIN that were not meant to defeat near-peer communications. Fielding new equipment with more sensitive receivers and stronger power outputs will be crucial in providing BCTs with a reliable system.

The third issue is the lack of a common graphical user interface (GUI). The multiple Wild Bill sensors do not have the ability to digitally share found frequencies, LoBs or enemy intelligence. To do this, operators must use another method, FM or JCR, to share information and fix the emitter with a map and protractor. With a common GUI

and a meshed network, operators can put the protractors aside and more accurately fix a hostile emitter. Wild Bill and CEMA have access to the EW Planning-Management Tool (EWPMT), which is capable of linking the Defense Digital Service and sharing information with other battle-command common-services systems. However, many of the Wild Bill sensors use COTS systems that are not compatible with EWPMT. To be successful with future equipment fielding, the Army must adopt a common planning tool and GUI for all equipment before becoming a program of record.

As maneuver begins to adapt EW and SIGINT, EW and SIGINT must adapt to maneuver. The current platforms that Wild Bill is assigned – mine-resistant ambush-protected (MRAP) all-terrain vehicles and MaxxPro MRAPs – are not capable of maintaining the rapid and forceful nature of an ABCT. CEWI platoons of the future need to reflect the mobility of the unit they support, and in the case of Ironhorse, they will need tracks.

As it stands now, Wild Bill is 18 troopers strong, with only 14 of them EW or

SIGINT MOSs. Combine that with the dozen sensors and five vehicles they operate, and one can picture the physical problems that can arise while operating in a contested and continuous-operations environment. Updating the modified table of organization and equipment to task-organize cavalry-scout Bradley Fighting Vehicles and crews will allow the platoon to be self-sufficient at both security and maneuver while also operating continuously. These vehicles, both Bradley and Armored Multi-Purpose Vehicle variants, will need to be outfitted with EW and SIGINT equipment and systems to ensure that CEWI remains fully mission-capable.

### Answer to dilemma

Platoons like Wild Bill are combat multipliers, shaping efforts within the cyberspace domain. As with any other shaping operation, their task and purpose must be nested to support the main effort. This begins with planning, in depth and in advance.

Wild Bill cannot be the only EW and SIGINT asset out there. By stacking the knowledge and effects that CEMA and the S-2 can bring to bear, we can undoubtedly create an inescapable electromagnetic dilemma for our adversaries. For example, an ABCT can better ensure the success of a combined-arms breach or the seizure of a city if it is able to simultaneously deny enemy air-defense artillery with an EA-18G Growler (jamming-capable aircraft), deny FM signals with an EC-130H Compass call, deny JCR with a cyberattack, and deny recon or third-party communications with Wild Bill.

If a BCT like Ironhorse is the primary battlespace owner in an LSCO environment, it must also extend its influence throughout the cyberspace domain on a scale greater than Wild Bill. Ironhorse foresees the creation of an entire EW company to better shape cyberspace at the BCT level. Under the command of a cyber and EW officer (Functional Area 17B), this company will be tasked to conduct information dominance within its brigade's area of operations (AO). Its primary tasks would include mapping the electromagnetic environment, locating key command-and-control (C2) nodes and denying, degrading or deceiving



Figure 6. VROD mounted on the Wild Bill BFIST in a collection site.

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Figure 7. "A way" to update Wild Bill.

enemy tactical-information systems. The company would be fully nested with CEMA and the S-2 to accomplish cyberspace echelons of fire that are desperately needed in the decisive-action environments of the future.

Accomplishing these tasks would require expansion of the current CEWI structure into three platoons as well as more capabilities task-organized to the company. The primary ES platoon would operate in tandem with a SIGINT section much like the current

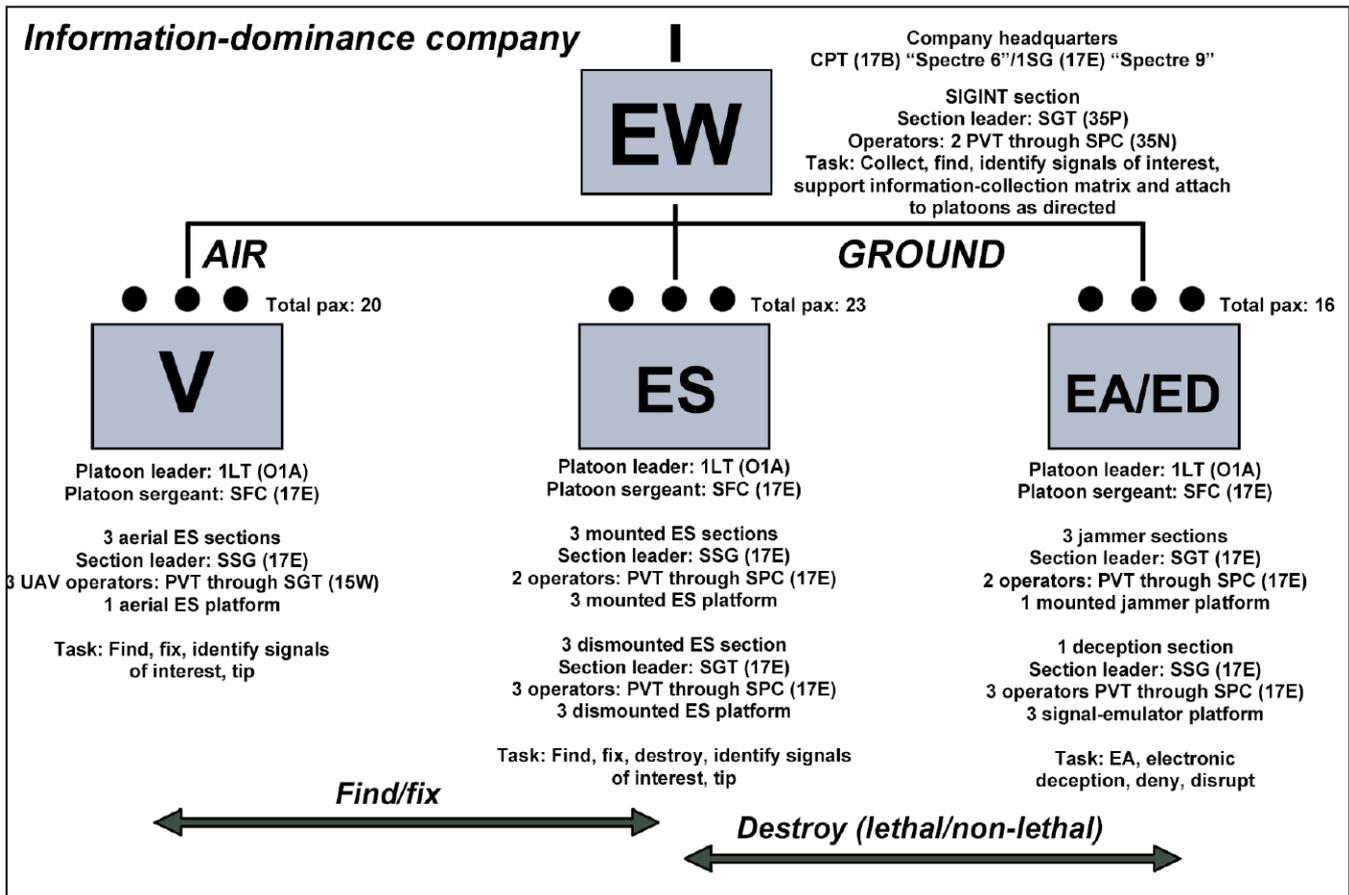


Figure 8. Projected information-dominance company.

Wild Bill structure. It would be tasked to conduct ES to find, fix and destroy enemy emitters and C2 nodes through DF. The second platoon would focus on conducting EA to degrade and deceive enemy information systems. Finally, the third platoon would conduct ES with organic unmanned aerial vehicles (UAV) armed with EMS sensors.

The two ground platoons can be fielded by acquiring more program-of-record systems to the BCTs, with the addition of more EW personnel who are projected in the current force-design update. The third aviation platoon will require fielding an ES-capable UAV platform and more operators. Fielding this third platoon would be decisive in shaping the cyberspace domain within a BCT's AO. This platoon will allow the sensors to get above terrain and see the EMS past the close fight and into the deep zone.

The late LTG Hal Moore said, "There is always one more thing you can do to increase your odds of success"; the Ironhorse ABCT is investing time and

energy into one of those things. The progress accomplished in the Ironhorse ABCT is a step in the right direction toward competing in an increasingly disconnected, intermittent and limited environment. With initiatives like the Wild Bill CEWI platoon, Ironhorse will continue to fire and maneuver in the cyberspace domain.

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Course, Ranger School, Airborne School and the Bradley Leader Course. He has a bachelor's of arts degree in history with a concentration in American studies from Eastern Connecticut State University. CPT Malcolm also earned an Expert Infantryman Badge, Ranger Tab and Parachutist Badge.

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Figure 9. The EWTV takes the high ground.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**AO** – area of operations  
**ATCAE** – Army Technical Control and Analysis Element  
**BCT** – brigade combat team  
**BFIST** – Bradley Fires Support Team Fighting Vehicle  
**C2** – command and control  
**CALFEX** – combined-arms live-fire exercise  
**CEMA** – cyber-electromagnetic activities  
**CEWI** – combat electronic warfare and intelligence  
**COIN** – counterinsurgency  
**COTS** – commercial-off-the-shelf  
**DF** – direction-finding  
**EA** – electronic attack  
**EMS** – electromagnetic spectrum  
**ES** – electronic support  
**EW** – electronic warfare  
**EWPMT** – Electronic Warfare Planning Management Tool  
**EWTV** – Electronic Warfare Tactical Vehicle  
**FLOT** – forward-line-of-own-troops  
**FM** – frequency modulation  
**FM** – field manual  
**GUI** – graphical user interface  
**JCR** – Joint Capabilities Release  
**LoB** – line of bearing  
**LSCO** – large-scale combat operations  
**METL** – mission-essential task list  
**MOS** – military-occupation specialty  
**MRAP** – mine-resistant ambush-protected  
**MTOE** – modified table of organization and equipment  
**NAI** – named area of interest  
**OPFOR** – opposing force  
**PIR** – priority intelligence requirement  
**SALT** – size, activity, location, time  
**SC/PT** – single-channel plain text  
**SIGINT** – signals intelligence  
**UAS** – unmanned aerial system  
**UAV** – unmanned aerial vehicle  
**VROD** – Versatile Radio Observation and Direction (system)

# A New Combined-Arms Approach for the Armored Brigade Combat Team

by Steven A. Yeadon

A new way of integrating the combined arms of the armored brigade combat team (ABCT) when it's combined with the deployment of the Joint All-Domain Command and Control (JADC2) network is needed to maximize unit capabilities during a war against the major powers in an era of all-domain operations.

JADC2 – the emerging term senior Department of Defense (DoD) officials are using to describe linking military sensors to all warfighters across all services and domains – will provide decision-makers with the most accurate situational awareness possible. To make JADC2 a reality, the Pentagon will first need to identify and leverage a highly flexible, scalable common data platform that can accommodate DoD's vast amount and types of data from across the service branches. A successful JADC2 program will also infuse data across domains with artificial intelligence and machine learning to allow machine-speed analysis and real-time situational awareness, helping funnel the right data to the right commanders or operators at mission speed.<sup>1</sup>

This article makes the case that JADC2

changes armored warfare because detected indirect-fire weapons can swiftly destroy detected enemy units. The best way to implement this tactic is for all forward armored units to possess indirect-fire weapons. No longer must the battle tank be the main foil through direct-fire engagements.

## 'Battle of signatures,' 'ascendancy of fires'

This analysis bases itself on two concepts called the "battle of signatures" and the "ascendancy of fires." The *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21<sup>st</sup> Century* states that the future of warfare will depend on a "battle of signatures": "Tomorrow's fights will involve conditions in which 'to be detected is to be targeted is to be killed.' Adversaries will routinely net together sensors, spies, unmanned aerial systems (UAS) and space imagery to form sophisticated 'intelligence, surveillance, reconnaissance (ISR) strike systems' that are able to locate, track, target and attack an opposing force. In complex terrain, adversaries will collect targeting information through eyes and ears and spread it through social media. No matter the means of detection, unmanaged signatures will

increasingly become a critical vulnerability."<sup>2</sup>

Thus a decisive factor for land warfare is to stay undetected because detected forces face swift destruction by enemy fires. As the war in the Donbass region of Ukraine shows, this idea of a battle of signatures may already be in effect against the Russian military due to the combination of Russian massed area fires assisted by overhead surveillance. This reconnaissance-strike model was central to the Zelenopillya rocket attack that destroyed most of two Ukrainian mechanized battalions that were in the open in July 2014.<sup>3 4</sup>

Second, the concept of an "ascendancy of fires" originally stems from a statement in *Field Artillery Journal* by GEN Glenn K. Otis in 1995.<sup>5</sup> As the Federation of American Scientists explains: "The ascendancy of fires is a concept that describes the combined results of the improving ability to 'see the battlefield' while simultaneously attacking at depth with precision lethality. The ascendancy of fires describes a potential trend where land warfare is becoming more like sea and air warfare – i.e., forces will fight at increasingly greater ranges in 'demassed formations.' In this setting, combat



elements conducting superior information operations and employing state-of-the-art smart/brilliant munitions, robotic vehicles and swarms of unmanned aerial vehicles can conceivably shape the battlefield and conduct decisive operations, possibly without coming in visual contact of each other. This would produce a dispersed combat situation where small, powerful, highly mobile tactical units employing precision fires fight almost independently over incredibly large distances. The national mandate to win quickly with minimum casualties remains the driving factor in the emerging ascendancy of fires.”<sup>6</sup>

A serious question to raise in 2020 is, “Are we approaching an ‘ascendancy of fires’?” This concept, first explored in the 1990s, will soon apply to current battlefields against a near-peer power. The development of the JADC2 network will allow a maturation of both the battle of signatures and the ascendancy of fires for U.S. forces against potential enemies. U.S. ground units should organize around the predicted principle of small, lethal, highly mobile tactical units employing precision-guided indirect fires as they fight almost independently over incredibly long distances.

This article analyzes the necessary changes in doctrine to improve ABCT combined arms. It will then examine the current and necessary materiel to improve ABCT combined arms according to this new doctrine. It will conclude by finishing the rest of the doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) analysis on this new concept.

## New concept for ABCT combined-arms doctrine

To begin, the need for mobile protected firepower and infantry to engage targets at direct-fire ranges will not go away. This analysis assumes the best way forward is to alter the weapons on Infantry Fighting Vehicles (IFVs) and main battle tanks (MBTs) to take advantage of information dominance while retaining their direct-fire capabilities to directly engage and defeat an enemy should there be a need for an armored fist. Armored formations

are best for an ascendancy of fires due to their mobility, survivability and lethality, which can be repurposed for indirect fires. Also, this analysis sees a use in supplying armored and mechanized-infantry battalions with new units that can take advantage of a superior ability to “see” the battlefield.

This future can be enabled for U.S. forces through the acquisition of specific weapons that will add greater agility. The most important are indirect-fire weapons capable of destroying enemy armored vehicles for both MBTs and IFVs. Thus, they will be indirect-fire platforms that can also excel in direct-fire engagements. There will also be a use for units of indirect-fire anti-tank guided missile (ATGM) tank destroyers, such as those in-development by Poland,<sup>7</sup> to add volume of fire to anti-armor firepower.

When combined with long-range precision-fires, the goal will be multiple layers of lethality against enemy armor before a direct-fire engagement. This will ensure that detection means death before an enemy can engage with direct-fire weapons. The goal is to reduce casualties and provide a higher operational tempo for U.S. military forces against the militaries of major powers.



**Figure 1.** A Russian UGV based on the BMD armored chassis. Russia’s armed forces will likely integrate UGVs with motor rifle battalions because of the Ministry of Defense’s “Weapons Robotizing 2015” program.

This goal is enabled by Joint connectivity through JADC2 that enables massive data-gathering through all shooters partnering with Joint ISR assets and swarms of unmanned ground vehicles (UGVs) and UAS. With the aid of artificial intelligence and machine learning, this data turns into actionable information rapidly disseminated to commanders. A commander can then choose to act on the new information to engage an enemy unit with fires or indirect-fire weapons possessed by nearby armored units.

A logical sequence for understanding this concept is as follows:

1. Joint connectivity created through the JADC2 network;
2. Shooters, Joint ISR assets and UGV and UAS swarms feed the JADC2 network with massive amounts of data;
3. Rapid analysis and dissemination of intelligence, aided by artificial intelligence and machine learning, provides information to commanders at mission speed;
4. Judgment by commanders in the loop as to whether to use force;
5. Indirect-fire by armored units or long-range precision fires; and
6. Enemy unit destroyed.

However, as retired COL John Antal concluded, "Precision strikes that are not backed up with a continuous battle of decisive maneuver are merely artillery raids set out to punish, not defeat, an opponent."<sup>8</sup> This is an important reminder and caution for the tactic of massed, precision-guided fires proposed in this analysis. Attrition while in a battle of signatures does not necessarily lead to victory. That requires a broader all-domain operation and decisive action.

## Understanding current anti-armor materiel for ABCT

It is important to understand current U.S. military anti-armor capabilities before offering recommendations for new materiel. To begin, direct-fire antitank firepower for U.S. military forces currently includes Javelin missiles; tube-launched, optically tracked, wire-guided (TOW) 2 missiles; an Abrams MBT's M256 120mm tank gun; and the M242 Bushmaster 25mm cannon on Bradley Fighting Vehicles (BFVs).

The Javelin missile has a maximum range of 4.5 kilometers.<sup>9</sup> The TOW 2 missile's range is 3.75 to 4.5 kilometers.<sup>10</sup> The BFV's M242 cannon has an effective range of two kilometers and can penetrate the armor of many armored vehicles it will encounter, including some MBTs.<sup>11</sup> As for an Abrams' main gun, M829A3 Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer (APFSDS-T) projectiles are the current large-caliber projectiles used to destroy enemy heavy armored vehicles.<sup>12</sup> These projectiles have an effective range of three kilometers.<sup>13</sup> However, given the classified nature of modern MBT armor,<sup>14</sup> it is unknown how many APFSDS-Ts are needed to defeat a modern MBT. That said, the first Gulf War shows that a single APFSDS-T regularly defeats older tank designs, such as the T-72, T-72M and T-72M1, from any angle.<sup>15</sup>

The Javelin missile is a fire-and-forget weapon allowing for mobility immediately after launching the missile. This compares to TOW-2 missiles that require Soldiers to aim at a target until the missile strikes.

As for the monetary cost of these



**Figure 2. A Battle Group Poland U.S. Soldier participates in Javelin ATGM training near the Bemowo Piskie Training Area during Saber Strike 17 June 11, 2017. (U.S. Army photo by Charles Rosemond, Training Support Team Orzysz)**

anti-armor weapons, the fiscal year (FY) 2018 unit cost for a Javelin missile was \$206,705.<sup>16</sup> The FY18 unit cost for a TOW 2 missile was \$83,381.<sup>17</sup> The next-generation M829E4 depleted uranium APFSDS-T costs \$13,061.58 per unit as of FY17.<sup>18</sup>

Lastly, as a point of reference, the Air Force plans to purchase Small Diameter Bomb IIs to destroy moving targets. The unit cost of this ordnance as of December 2015 was \$243,000.<sup>19</sup>

New long-range precision fires are in development to achieve parity or superiority against other major powers

in terms of technology. First, there is the Extended Range Cannon Artillery program that will increase the range of the M109 Paladin 155mm self-propelled howitzer from 30 kilometers to 70 kilometers.<sup>20</sup> This will allow precision-guided 155mm projectiles to perform the same role as more expensive precision-guided rockets and missiles. Future hypersonic precision-guided munitions may push this capability out to 100 kilometers.<sup>21</sup> There is also a new anti-armor 155mm artillery round being procured in the BONUS antitank artillery projectiles, each armed with two precision-guided top-attack

antitank munitions.<sup>22 23</sup> Another solution for defeating armor with tube artillery is the in-development precision-guided 155mm Cannon-Delivered Area Effects Munition (CDEAEM).<sup>24</sup>

Next, the Guided Multiple-Launch Rocket System (GMLRS) guided rockets have a range of 70 kilometers. GMLRS-guided rockets can use an area-fires alternative warhead, which affects as large an area (0.23 square kilometer)<sup>24</sup> as earlier sub-munition-equipped rockets.<sup>25</sup> Thus, the M270 Multiple Launch Rocket System can strike an area of around a square kilometer. To extend the range of U.S. guided rockets against near-peer guided rockets, there is a program to acquire the tail-controlled GMLRS guided rocket, a next-generation guided rocket that can hit stationary targets at a range of up to 136 kilometers.<sup>26</sup> Current GMLRS-guided rockets have a unit cost of \$129,226 in FY18.<sup>27</sup> This cost is less than a Javelin missile.

## New materiel needed to enable concept

There is a need for deploying weapons on U.S. MBTs and IFVs that can destroy armored targets with indirect fires. One way to do so is by arming U.S. armored vehicles with longer-ranged ATGMs. Another course of action is to develop rounds fired from MBT cannons that can destroy enemy armored targets with indirect fire.

An interim solution is to arm Abrams tanks and BFVs with ATGMs mounted on a remote turret to provide anti-armor indirect fire. An ATGM tank destroyer – such as those in development by Poland, created using the hull of the Armored Multi-Purpose Vehicle (AMPV) – could serve this role or provide extra volume of fire when needed for Abrams and Bradleys. Such an AMPV variant may be much faster to deploy than a next-generation combat vehicle that replaces the Bradley or Abrams.

Two ATGMs may be useful in the role

of providing indirect fires to current armored vehicles: the Hellfire missile and the United Kingdom's Brimstone missile.

Hellfire missiles have a direct-fire range of seven kilometers, an indirect-fire range of eight kilometers and a minimum range of .5 to 1.5 kilometers.<sup>28</sup> Longbow Hellfire missiles use a millimeter-wave radar guidance, and Hellfire II missiles use laser guidance to destroy enemy armored vehicles with an antitank warhead.<sup>29</sup> These missiles had a weapon-system unit cost of \$94,997 per missile (all variants) in FY18.<sup>30</sup> Hellfire missiles cost less than half as much as shorter-ranged Javelin missiles. Thus, given that the Javelin missile is an effective means of destroying enemy armor, then Hellfire missiles represent a superior, though vehicle-mounted, anti-armor capability at a lower unit cost.

Brimstone missiles are the United Kingdom's version of the Hellfire.<sup>31</sup> With a range of more than 40



Figure 3. U.S. Army soldiers load an AGM-114 Hellfire missile on an AH-64E Apache helicopter in Kunduz, Afghanistan. The Joint Air-to-Ground Missile will replace Hellfire. (U.S. Army photo by CPT Brian Harris)

kilometers, Brimstone II missiles have a much longer range than Hellfire missiles. They also possess both millimeter-wave radar guidance and laser guidance.<sup>32</sup>

One drawback to the use of Hellfire or Brimstone missiles will be a limited number of shots before a crew needs to reload the missile launchers with the very heavy (roughly 100 pounds) missiles.<sup>33,34</sup> Another drawback of this idea is the .5 to 1.5 kilometer minimum range of the Hellfire missile, which means that Hellfire missiles would best be used in combination with the Javelin missiles used by infantry deployed with U.S. IFVs, which have a minimum range of 150 meters.<sup>35</sup> TOW-2 missiles have a minimum range of 65-200 meters.<sup>36</sup> Thus, a combined-arms approach that uses all three ATGMs will allow troops with lightweight equipment to strike enemy armor from 65 meters to seven to eight kilometers.

A longer-term materiel solution is to create a Bradley replacement that has the flexibility to mount a variety of missile or drone launchers on either side of its turret in addition to a 50mm cannon. This could be like the flexible missile platform developed by Moog. This will allow the use of Brimstone missiles, Hellfire missiles, TOW-2 missiles and Javelin missiles by the Optionally Manned Fighting Vehicle while providing a capability for the use of Coyote drones and Stinger missiles for air defense.<sup>37</sup>

As for the Abrams replacement, a future MBT could fire precision-guided rounds able to defeat enemy armored vehicles with indirect fire. This would need to be a precision-guided armor-defeating projectile that can fire out of a battle tank's main gun. Essentially it is a smaller version of the in-development 155mm CDAEM.<sup>38</sup>

However, indirect projectile fire by battle tanks will require installing new targeting systems on all MBTs to allow precise indirect fire, installing cannons on new battle tanks that can elevate higher than the current 20 degrees<sup>39</sup> and including the Advanced Field-Artillery Tactical Data System (AFATDS). AFATDS is the fire-support command-and-control system employed by U.S.

Army and U.S. Marine Corps units to provide automated support for planning, coordinating, controlling and executing fires and effects.<sup>40</sup> Also, the right mix for each type of round in battle tanks will require simulations and wargames to determine.

## Organization, training, leadership, personnel and facilities

Because of the nature of this proposal, the organization of tank companies and mechanized-infantry companies is unchanged. I propose adding a tank-destroyer platoon to the headquarters and headquarters company of all armored battalions and mechanized-infantry battalions. Each tank-destroyer platoon will include three sections of two tank destroyers each, providing flexibility for the battalion commander to attach, assign or use them independently of the battalion's tank or mechanized-infantry companies. This new tank-destroyer platoon will be a fires battery, not unlike the current mortar platoon in the role of direct-fire support to front-line forces.

Training for the crews of armored vehicles will need to include the use of indirect-fire weapons, including ATGMs and certain projectiles fired from a battle tank's main gun. Gunners of all armored vehicles will need training in how to hit targets beyond line of sight. Battle-tank commanders will also need training on using AFATDS, leaving other crew to perform their respective roles of driving, loading and gunnery.

Leaders at all levels will need training on how to quickly ascertain and take advantage of short-lived opportunities to destroy enemy units with indirect fires. This training cannot be lopsided toward field-grade officers with a more informed view of the battlefield. Mission command will require initiative by all levels of command. However, the use of force will need a streamlined kill-chain process with rapid authorizations as needed. This is especially true in a contested electromagnetic-spectrum environment.

This tactic should not require new tank crew or IFV crew members. That said, this proposal requires a new

military-occupation specialty for tank-destroyer crew members and officers. If tank destroyers have three crew members (driver, commander and gunner), there will need to be 12 more Soldiers per headquarters and headquarters company of each armored battalion and mechanized-infantry battalion. This assumes no need for more logistical personnel. Given there are 16 ABCTs with three maneuver battalions each,<sup>41</sup> this will require adding another 576 Soldiers to the U.S. Army.

Facilities will need ranges for tanks large enough to provide training for gunnery using indirect fires out to a possible 40 kilometers. This will require new ranges simulating a variety of terrains for tanks and IFVs to train.

## Caution on protecting armored units

This only drives home the fact that detection on future battlefields means destruction. An important point to make for the protection of armored forces going into the future is to plan for artillery barrages, long-range precision-guided fires and massed cluster or thermobaric munitions against any U.S. armored forces detected by an enemy. This will require a new way of thinking about protection in terms of masking signatures.

Masking is the active and passive ability to make military systems difficult or impossible to identify, locate and target. Masking is more than camouflage and stealth. It employs next-generation active and passive means to reduce the electromagnetic spectrum (EMS) signature to render the system difficult to locate and hard to target. Some of these technologies could include:

- Advanced profile design to lower a vehicle's radar cross-section and reduce its thermal, electronic and acoustic signature;
- Low-tech, passive systems such as next-generation camouflage netting;
- Color-changing materials and radar-absorbing paint;
- Intelligent, multispectral camouflage systems to rapidly blend a vehicle into its surrounding EMS background;
- Decoys and portrayal of false actions and locations;

- Cognitive electronic-warfare systems employing machine learning to counter the enemy's radars;
- Electronic jamming to protect the emissions of friendly communications and electronic systems against enemy detection;
- Electronic-warfare support measures and signals intelligence; and
- The use of electronic countermeasures and digital radio-frequency memory to hide beneath the blanket of enemy or friendly jamming.<sup>42</sup>

There will be a requirement for such measures for the foreseeable future to provide protection for armored vehicles. Masking signatures could become more central to the survival of armored vehicles than even armor plating as the raw lethality of war increases. The alternative is to turn to costly attrition warfare using extremely large ground forces as occurred in both world wars.

## Conclusion

This article analyzed the changes in DOTMLPF needed to improve ABCT combined arms. The crux of this concept is through Joint connectivity provided by JADC2. Massive amounts of data gathered by all shooters to partner Joint ISR assets and swarms of UGVs and UAS lead to rapid analysis with the aid of artificial intelligence

and machine learning. This results in the rapid dissemination of actionable intelligence to commanders at mission speed. A commander can then choose to act on the new information to engage an enemy unit with fires or indirect-fire weapons possessed by nearby armored units.

Central to this concept is new materiel that will allow both anti-armor direct fire and indirect fire from all battle tanks and IFVs. Armored vehicles aided by new tank destroyers must also play a role.

That said, the future of precision-guided ordnance presages a broader question: "How will precision-guided weapons change the future of war?"

For instance, is the invention of precision-guided weapons like the invention of the rifle – something that changes warfare slowly at first but that dictates the battlefield later? The rifle was able to attack strategic targets using snipers and to harass troops from relative safety. However, it rapidly changed warfare as it became ubiquitous and technology evolved, causing very different battlefields to be only a few decades apart. The evolution of warfare from the American Revolution to the Civil War and through World War II shows this.

The cutting edge of modern war since World War II is arguably the

precision-guided munition. This includes advanced air defenses able to reach the stratosphere, to ATGMs, to bombs that increase the lethality of fixed-wing aircraft by orders of magnitude. Even modern anti-access/area-denial technologies are ultimately the result of advancing precision-guided ordnance (often bombs or rocket motors). Modern war has changed inexorably with the invention and evolution of precision-guided munitions, although directed-energy weaponry, cyberwarfare, space superiority, information warfare and networks such as JADC2 may give the precision-guided munition a run for its money in the 21<sup>st</sup> Century.

A further consideration is that precision-guided weapons are another tool for commanders among many, yet which will eventually need their own unique doctrine as a decisive arm of warfare. An example would be the invention of heavy cannon. Heavy cannons excelled at the ancient task of penetrating the walls of fortifications and by offering powerful defensive capabilities. Later, as their size, expense and weight decreased, cannons evolved into various types of field artillery such as the mortar and howitzer. They became weapons that eventually accounted for the most battlefield casualties in land warfare and have highly refined doctrine.<sup>43</sup>

Another consideration is whether the invention of precision-guided weapons is like the invention of firearms: something that forever changes every way in which war happens – ways that were poorly predicted – over a very long period. From the cannon to the harquebus to the musket to the rifle to the machinegun, war was never the same after the invention of the firearm, although it took centuries for firearm technologies to mature.

Regardless, continued innovation among all components of DOTMLPF will be decisive for present-day commanders facing a time of great uncertainty as to what warfare may look like in just 20 years.

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**Figure 4.** An example of blending: a Japan Ground Self-Defense Force Type 73 Ougata light truck camouflaged into its surrounding background.

professional-development bulletins *MCU Journal, Fires, Army Aviation Digest and Infantry*. He holds a bachelor's degree in political science from the University of Central Florida.

## Notes

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## TRADOC G-2 newsletter



U.S. Army Training and Doctrine Command's G-2 has just released a monthly newsletter, unclassified and approved for public release. Its inaugural edition highlights many of G-2's most recent products. The newsletter "seeks to arm leaders and Soldiers with resources to understand the operational environment [OE] and succeed when operating in it."

"One of the challenges associated with the changing character of warfare comes not just from the emergence of

disruptive technologies and our adversaries' embrace of them, but also from the ways in which they adopt hybrid strategies that challenge traditional symmetric advantages and conventional ways of war," writes LTG Theodore D. Martin, TRADOC deputy commanding general and TRADOC's chief of staff – and former commandant of the U.S. Army Armor School. "It is crucial to understand what the OE looks and feels like to warfighters to shape our application of combat power and how we train our formations to meet these challenges. [A] deep look at the future allows us to examine our assumptions about warfare, force structuring and capabilities requirements. This assessment is vitally important to every member of the Army team, from the brand-new Soldier, to general officers, to career Army civilians. Shared understanding of the environment is essential to preparing our people, setting the context for readiness, informing our modernization efforts and guiding us in reforming our processes to meet new challenges."

Specific country products:

- Iran products: <https://community.apan.org/wg/gckn/p/irandproducts>
- China products: <https://community.apan.org/wg/gckn/p/chinaproducts>
- Russia products: <https://community.apan.org/wg/gckn/p/russiaproducts>
- North Korea products: <https://community.apan.org/wg/gckn/p/northkorealibrary>

See also TRADOC Pamphlet 525-92-1, *The Changing Character of Warfare: the Urban OE*, <https://adminpubs.tradoc.army.mil/pamphlets/TP525-92-1.pdf>.

### ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**AFATDS** – Advanced Field-Artillery Tactical Data System  
**AMPV** – Armored Multi-Purpose Vehicle  
**APFSDS-T** – Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer  
**ATGM** – anti-tank guided missile  
**BFV** – Bradley Fighting Vehicle  
**CDAEM** – Cannon-Delivered Area Effects Munition  
**DoD** – Department of Defense  
**DOTMLPF** – doctrine, organization, training, materiel, leadership and education, personnel and facilities  
**EMS** – electromagnetic spectrum  
**FM** – field manual  
**FY** – fiscal year  
**GMLRS** – Guided Multiple-Launch Rocket System  
**IFV** – Infantry Fighting Vehicle  
**ISR** – intelligence, surveillance, reconnaissance  
**JADC2** – Joint All-Domain Command and Control  
**MBT** – main battle tank  
**TOW** – tube-launched, optically tracked, wire-guided  
**UAS** – unmanned aerial system  
**UGV** – unmanned ground vehicle

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**ARMOR**

# The Russian BMPT-72 and the Problem of Direct-Fire Support in Armored Formations

by 2LT E.R. Chesley

The tank was originally developed as a direct-fire support platform for infantry, but today the tank is a finely tuned machine designed very specifically to kill other tanks, a task it performs far better than any other weapons system. Unfortunately, in becoming a tank-killer, the tank has lost most of its ability to engage other types of targets.

While the tank has been liberally equipped with weapons and ammunition for dealing with troops, personnel carriers, trucks, field fortifications and air targets, all of these weapons and ammunition represent stopgaps rather than perfect solutions. The tank in and of itself lacks adequate direct-fire capability to deal efficiently with the peripheral threats on the modern battlefield.

Traditionally the tank has been supported in the offense and the defense by mechanized infantry. Mechanized-infantry troops and carriers combine to form a weapons system uniquely suited to support the tank by destroying non-tank targets. However, a

tactical gap has developed between the tank and the mechanized-infantry squad that renders the latter ineffective in its fire-support role. The Russians have noted this gap, and they have developed the BMPT-72, a system designed to fill the direct-fire-support role within their armored formations.

This article provides an overview of the BMPT-72 tank-support vehicle and advocates for the creation of an American equivalent.

## What is BMPT-72?

The BMPT-72 is an almost completely unique vehicle and, because there is no real equivalent, it is worth asking what exactly it's designed to do. The BMPT-72 is not an infantry fighting vehicle, armored personnel carrier (APC) or cavalry reconnaissance vehicle, and it is certainly not a main battle tank (MBT), so what role does it fill?

The BMPT is the world's first dedicated tank-support vehicle (TSV), a type of vehicle designed specifically to provide direct-fire support for tanks. The BMPT is built on a modified T-72 MBT

chassis, meaning it cannot carry infantry. Unlike a T-72, it does not possess a hard-hitting, high-caliber main gun. Instead it is armed with two 30mm autocannons, four anti-tank guided missile (ATGM) tubes and a coaxial 7.62mm machinegun, all mounted in an unmanned turret with two automatic grenade launchers mounted in the hull of some models. This array of firepower allows the BMPT to efficiently destroy a range of battlefield targets, while its powerful chassis makes it as maneuverable and survivable as the tanks it supports.<sup>1</sup>

To better explain the role a TSV might play on the battlefield, I will detail how and why the BMPT-72 came to be.

## Origins of BMPT-72

In the Russian military, the armored assault is predicated on the idea of close coordination among armor, artillery and mechanized infantry. This close cooperation proved difficult to achieve as infantry carriers are generally too slow to keep up with tanks and too vulnerable to survive on a modern battlefield. Thus the Russians saw a tactical gap developing between the mechanized-infantry squad and the tank. In the midst of this revelation, the Russians experienced acute deficiencies in direct-fire capability during their invasions of Afghanistan and Grozny.<sup>2 3 4</sup>

These tactical issues led to the BMPT-72's development, designed to counter the gamut of battlefield threats by offering the suppressive capability of a mechanized-infantry squad in a package that was as protected and maneuverable as the tanks it would accompany.

## TSV for U.S. Army

A purpose-built TSV would greatly improve American lethality against the type of mechanized threat that near-peer adversaries pose. TSVs could provide obvious and not-so-obvious advantages to maneuver formations in all sorts of tactical situations:



Figure 1. The first model of BMPT-72. Note the unarmored ATGM tubes, hull-mounted grenade launchers above the tracks and Active Protection System tubes barely visible at the base of the turret. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.)



Figure 2. A Russian army BMPT-72 with a T-80 and T-90. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.)

- A formation of MBTs and TSVs facing a much larger mechanized formation could prioritize targets by vehicle type, with MBTs focusing on the anti-tank fight while TSVs eliminated light armor and dismounts. This division of labor would change the “correlation of fires” in favor of U.S. forces. This would also mean tanks could carry a greater proportion of sabot rounds, increasing their endurance and anti-tank capability.
- In urban environments, TSVs could provide direct-fire support to MBTs and dismounts with the advantage of being able to fire at higher angles. The TSVs also create less collateral damage than a tank’s main-gun fire. For obstacles requiring greater firepower than 30mm cannons, ATGMs could be swapped for unguided direct-fire obstacle reduction rockets.<sup>5</sup>
- TSVs could carry mine rollers and plows in breaching operations to breach and proof obstacles. Distributing obstacle-reduction equipment to the lighter TSVs would reduce mechanical stress on the already heavier MBTs, and they would be free to overwatch the breach operation.
- A TSV with an unmanned turret would be exceptionally survivable and easily repairable if damaged. Also, an elevated unmanned turret like the one found on the BMPT-72 would allow the TSV to fight without exposing its crew to direct fire.
- A TSV’s cannons could easily destroy a *boyevaya mashina pekhoty* (BMP – Russian fighting vehicle) and a

*bronetransportyor* (BTR – Russian armored personnel carrier), but given an airburst round or an anti-air-capable fire-control system (FCS), the TSV could turn a Hind (Russian helicopter) into temporarily airborne modern art far more quickly and easily than a man-portable anti-tank system air round. TSVs could even accept small modular radar arrays and swap ATGMs for surface-to-air missiles to provide tactical air defense with gun and missile systems. Adoption of an air-defense anti-tank system (ADATS)-type weapon would allow one missile to perform both anti-air and anti-tank functions.<sup>6</sup>

- TSVs could also be co-opted to provide direct-fire support to infantry formations or guard mobile artillery pieces operating close to the front. Any role requiring flexible direct-fire support could be filled by a TSV.

## Modularity

A key aspect of a TSV should be modularity. By creating turret and hull systems that are easily modifiable, even in theater, the TSV could be quickly and easily adapted to a variety of “roles within a role.” Although the role of a TSV is to provide direct-fire support to tanks, other missions and a range of different threats on a range of different battlefields would make it difficult to create a one-size-fits-all platform.

For example, a TSV moving into an urban area would require different subsystems than one assigned to accompany armored formations in an attack or defense against a sophisticated

mechanized threat in open country. Alternatively, in the case of an urban environment, a commander might want explosive or semi-armor-piercing ammunition, a Common Remotely Operated Weapon Station-mounted machinegun or automatic grenade launcher, an acoustic gunfire-detection system and the previously mentioned obstacle-reduction munitions, along with applique armor to increase all-aspect protection without endangering dismounts.

Against a mechanized threat, a commander might want armor-piercing and high-explosive ammunition, ATGMs, advanced day-night optics and an explosive reactive armor (ERA) package. By designing modularity into the platform, the TSV could fulfill multiple roles on a variety of battlefields.

The Stryker can be seen as an example of the benefits of modularity. Despite the Stryker’s distinct lack of survivability and cross-country mobility, the Army has leveraged this basic platform into a range of vehicles with unique capabilities. As an example, the Army’s current short-range air defense (SHORAD) solution – the Stryker-based A1 IM-SHORAD – sees a Stryker chassis equipped with an anti-aircraft gun, missiles, radar and electronic-warfare systems.<sup>7 8 9</sup> The Army also apparently intends to equip the vehicle with emerging laser anti-drone weapon systems.<sup>10</sup>

By using a modular platform as a base on which various weapons and systems can be attached, the Army has created a platform to deal with conventional air threats as well as the

emerging threat of small unmanned aerial systems. Unfortunately, while a big step in the right direction, any Stryker-based system remains woefully incapable of accompanying armor. A more mobile and better protected, but equally modular, platform could present a solution to a range of tactical problems that at present are filled by stopgap solutions.

## Organization

One critical, non-materiel question to be asked when considering the adoption of a new platform, especially a conceptually new platform that is not simply replacing an existing system, is how the new weapon should be integrated into an existing organization.

Let's consider an armored brigade combat team. If TSVs are integrated independently from the combined-arms battalions (CABs), perhaps as one or two companies in the brigade engineering battalion (like the Stryker main-gun system in the Stryker BCT), or in a novel "maneuver fire-support battalion" with one or two companies of mechanized infantry, there would be an benefit in terms of maintenance and organization. If these platforms were grouped together, the brigade commander would have greater control over how they were used, and he or she could mass their effects. If centralized, TSVs could be controlled and commanded by officers and Soldiers who have the experience and background to make the best tactical use of the platform. Also, centralization of these platforms would make resupply and maintenance more straightforward.

On the other hand, integration of TSVs into the CABs by supplementing or replacing the mechanized-infantry companies would provide greater tactical efficiency. The Russians found that integrating combined arms at the battalion level allowed better and more regular combined-arms training. Integration at the battalion level would lend itself to tactical efficiency as more training opportunities would be available and tactical leaders would be more familiar with each other's systems and tactics.

The Russians eventually found that managing the training, maintenance

and supply of many different platforms proved to be an overwhelming burden for battalion commanders and the CAB structure was eventually abandoned, but there are several important differences between U.S. and Russian battalions.<sup>11</sup>

First, U.S. battalion commanders tend to be much more experienced than their Russian counterparts and, critically, tend to have a much larger staff.<sup>12</sup> Second, Russian formations tend to be less flexible at battalion levels and retain more initiative at echelons-above-battalion, making them less capable of integrating combined arms at a tactical level.

As to the issue of maintenance and supply, if the TSV was developed on an Abrams chassis, these problems might be even less of an issue than they are now. Also, despite past Russian failures, the United States has seen success with tactical combined arms as exemplified by the armored-cavalry troops (ACTs) organic to armored-cavalry regiments (ACRs), which I will discuss later.<sup>13</sup>

Another important consideration is the fact that the Russians have returned to the use of CABs in the form of their battalion tactical groups, which are, at present, in wide use.<sup>14</sup>

I propose that a sort of best-of-both-worlds solution could be achieved in terms of organization. In the CABs, TSVs could be integrated as separate TSV companies within the CAB – or even integrated at the company level along the lines of the ACR's ACT, with one or two platoons of TSVs operating with two or three platoons of Abrams.

Also, at the brigade level, one or two companies of TSVs could be maintained as a more flexible resource for use by the brigade commander. These brigade-level assets could include TSVs equipped for air defense, infantry fire support or security missions, with the added benefit that these niche-support vehicles could be operated by Soldiers with relevant military-occupation specialties (MOSs) such as the 11 or 14 MOS series.

## Bradley and Desert Storm

There is the question of why the Army should pursue an entirely new

platform when the Bradley already exists. This is a good question because the Bradley is a proven platform, and it is similar to a TSV in many ways. During the 1991 invasion of Iraq, the Bradley worked closely with the Abrams as part of the ACT and acted as both a reconnaissance vehicle and, in many cases, a makeshift TSV.

At the Battle of 73 Easting, a microcosm of Operation Desert Storm, Bradleys used ATGMs to engage targets outside the range of the Abrams main gun and used autocannons against softer targets such as APCs, infantry and field fortifications.<sup>15</sup> There are even accounts of Bradleys destroying multiple tanks at close range, but despite their performance, there are limits to the efficacy of the Bradley that can be uncovered by looking closely at the 1991 invasion.

First, Desert Storm, as the name reminds us, occurred in an open desert where visibility conditions were limited by severe weather. This meant that coalition armor was often able to use superior optics and FCS to see through dust and engage enemy targets from beyond the range at which the low-quality export-model T-72s could respond. The fact that Iraqi armor was often unable to lay effective direct fire, even at close ranges, underscores this point.<sup>16</sup> This lack of effective fire-control capability meant that Bradleys were less exposed to enemy direct fire and their much weaker armor did not present an issue.

That being said, in this situation, it is important to consider that there were far more casualties among Bradley crews than Abrams crews.<sup>17 18 19</sup> The Bradley is vulnerable to direct fire and, in a European conflict, armored formations would be exposed to accurate direct fire, and the Bradley would be forced to either remain far behind the armor or suffer inordinate losses. Therefore one of the key principles of the TSV concept is that they should be as survivable as the MBTs they support.

The second issue with the Bradley relates to its limited mobility. While post-Desert Storm sources stated that the Bradley was able to keep pace with the Abrams, there were some issues, notably with reverse speed.<sup>20</sup>



**Figure 3. An M2 Bradley Fighting Vehicle operates in desert conditions at the National Training Center, Fort Irwin, CA. (U.S. Army photo by SGT Eric M. Garland II)**

The Abrams reverse speed is about double that of the Bradley, which resulted in vulnerable Bradleys being left behind by rapidly reversing Abrams. Also, the Abrams is flat-out faster than the Bradley, and a TSV built on an Abrams chassis would probably be about 10-20 tons lighter still than an Abrams, meaning that more rapid and shocking attacks would be possible.

The Bradley is a good weapon system and an important part of any maneuver formation, but it will not prove an effective substitute for a purpose-built TSV. Although creating a new weapons system from scratch may not be ideal, there is no need to develop a completely new vehicle when the Army already has many of the parts necessary to simply “assemble” one.

## Approach to acquisitions problem

While simply shoehorning a pre-existing platform like the Bradley into a new tactical role would be cheaper than creating an entirely new vehicle, the cost of creating a TSV need not be prohibitive. The Army would be able to pursue a more “evolutionary” approach to the acquisitions process, as many of the subsystems necessary to create an effective TSV are already battle-tested and relatively little ground-up design work would be required.<sup>21</sup>

The TSV could make use of a redesigned Abrams chassis with the entire crew moved into the hull to make room for an unmanned turret. Private industry has already created an Abrams with an unmanned turret, and it has recently displays mockups of a new version of the same concept.<sup>22</sup> The TSV would require a new unmanned turret, but there are a variety of suitable weapons systems in the U.S. inventory now. These include the Bushmaster and several new larger-caliber autocannons; the tube-launched, optically tracked, wire-guided missile; Hellfire and Javelin missiles; and a full selection of machine-guns and automatic grenade launchers. With these options already on hand, design work could focus on creating a new housing for pre-existing weapons and systems.

It might also be desirable to rearrange armor around the TSV to enhance all-aspect protection at the expense of a bit of frontal-aspect protection, but this type of redesign could be accomplished relatively easily by making use of ERA or applique armor.

Ultimately, there is no need to reinvent the wheel for a system that represents more of a conceptual change than a technological one.

## Mechanized infantry

On the subject of mechanized infantry,

the Russians have not discounted their value in the combined-arms team, and neither do I.<sup>23</sup> In fact, I believe that an American TSV would free the infantry to focus on missions for which they are more uniquely suited, such as clearing and patrolling close terrain, reducing bypassed enemy formations and assisting in defensive actions from well-sited and prepared positions. Reducing the exposure of mechanized infantry to anti-tank weapons by removing them from the bleeding edge of the battlespace would allow infantry-vehicle concepts that more closely conform to the dismounted mission.

The Bradley is relatively well-armed and -armored because it was conceived for high-intensity Cold War conflict against T-72s and BMPs.<sup>24</sup> It pays for this substantial combat capability by having limited space for dismounts and less cross-country mobility than a lighter platform. If mechanized infantry were not forced to closely accompany MBTs in combat, their exposure to direct fire would be decreased and infantry vehicles could return to an APC concept, typified by lightly armed and armored platforms that are highly mobile and provide protection from artillery, machinegun and light anti-tank weapon fire.

As an example, during the Vietnam War the lightly armed and armored M113 APC was often found to have better mobility across difficult terrain than even dismounted troops due to its light weight and amphibious capabilities.<sup>25</sup> Lighter, faster and more capacious vehicles would allow the infantry to focus on missions at which they excel by allowing dismounts to maneuver to an objective more rapidly and in greater numbers.

Also, TSVs could provide more effective direct-fire support for infantry than any presently available platform, making up for the loss of firepower from their old transport vehicles.

## TSVs in Russian military

To date, the BMPT-72 has not been widely incorporated into Russian Army structure. While this might seem to discredit the concept, there are several reasons for this apparent lack of interest.

While the BMPT-72 has not been

widely integrated, it has been accepted for service, and the Russian Ministry of Defense (MoD) has begun to take deliveries of the platform. It seems that despite ongoing development, the MoD has only just deemed the BMPT-72 to be acceptable but probably not fully so. Despite the limited adoption, development is proceeding on future models of the BMPT-72, indicating an ongoing interest in the concept. The next model of TSV will reportedly make use of the Armata chassis and be even more heavily armed.<sup>26</sup>

When looking at Russian arms development, it is important to consider the MoD's relatively limited financial resources. Despite devoting a proportionally large amount of money to "defense," Russia has historically been unable to field all its newest and most effective gadgets.

The Armata platform is a perfect example. It seems likely that Russia would like to adopt the T-14 and other Armata-series vehicles, but it has proven more financially viable to acquire greater numbers of older, but still very capable, tanks and armored vehicles.<sup>27</sup> Acquisition of the BMPT-72 will likely proceed at a limited rate due to financial difficulties rather than lack of interest.

Another consideration is the fact that the most recent model of the BMPT-72 was apparently specifically

designed for the export market.<sup>28</sup> This may play a role in its limited adoption, as Russian export vehicles are generally inferior to their domestic acquisitions.

Algeria has apparently fielded a substantial number of imported BMPT-72s alongside imported T-90s, and Kazakhstan has enthusiastically incorporated the BMPT-72 into its force structure, even going so far as to commence domestic production under license.<sup>29 30</sup> One possibility is that Russia may be making shrewd use of an opportunity to field an advanced testbed by selling it to other countries and closely monitoring its performance before pursuing final development for themselves; however, this is entirely my own speculation.

As a final note on the subject, a Chinese corporation has developed a TSV similar to the BMPT-72. The QN-506 is built on the Type 59 tank chassis and features an even wider range of weapons than the BMPT. However, it is unclear whether the vehicle will be adopted for service in the Chinese army.<sup>31</sup>

## Conclusions

My proposal here is not novel. The BMPT-72 demonstrates that Russia, the world leader in armor theory, is pursuing solutions to the problem of direct-fire support in armor formations. This is not even a new idea in

the West. In 1996 an article was published in **ARMOR** that provided a detailed proposal for a vehicle built on an Abrams chassis, designed to provide air defense and direct-fire support with autocannons and missiles.<sup>32</sup> However, the collapse of the Soviet Union and the beginning of the Global War On Terrorism resulted in an almost complete lack of interest in developing platforms for symmetric warfare.

With a resurgent Russian military, focus is returning to the armored fight. The U.S. Army has about 20 years of resting on the laurels of Desert Storm to reckon with. Given the wide range of anti-tank threats on the battlefield, the tank's limited ability to deal with these peripheral threats and the mechanized infantry's increasingly limited ability to accompany armored formations, it seems clear that a new solution to the problem of direct-fire support in the armored formation is warranted.

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## Notes

<sup>1</sup> Dr. Lester W. Grau, "Preserving Shock Action: A New Approach to Armored Maneuver Warfare," **ARMOR**, September-October 2006.

<sup>2</sup> Yago Rodríguez Rodríguez, *Revista Ejercitos* on-line, Oct. 13, 2018, <https://www.revistaejercitos.com/2018/10/13/bmpt-terminator-ij/>.

<sup>3</sup> Grau, "Preserving Shock Action: A New Approach to Armored Maneuver Warfare."

<sup>4</sup> CPT Charles K. Bartles and Dr. Lester W. Grau, "A New System Preserves Armor Dominance of the Future Battlefield: BMPT 'Terminator-2'," **ARMOR**, April-June 2015. This article represents the main source of my ideas on this subject. I would highly recommend reading this article in its entirety to better understand my article, specifically the Russian basis for developing the BMPT-72.

<sup>5</sup> Or rockets could make use of high-explosive squashhead-type warheads, which have exceptional effects against obstacles.

<sup>6</sup> Dr. Asher H. Sharoni and Lawrence D.



**Figure 4. The latest model of BMPT-72 destined for the export market. Note the redesigned turret and lack of forward-facing grenade launchers. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-Non-Commercial-NoDerivatives 4.0 International License.)**



Figure 5. The Object 787, an early prototype TSV. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial- International License NoDerivatives 4.0.)



Figure 6. The Russian Army BMPT-72. Note that the turret has been modified with armor surrounding the ATGM tubes and some other changes, but the hull retains the grenade launchers. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial- International License NoDerivatives 4.0.)

Bacon, "Forward Area Air-Ground Defense: Do We Need A Dual-Role Hybrid Air-Ground Defense System for the Armored Forces?", *ARMOR*, July-August 1996: "[ADATS] is a single-stage, multi-purpose, highly accurate, day/night and adverse-weather missile system. It has a true and unique dual-target capability for engaging low-flying aircraft, advanced attack anti-tank helicopters and armored vehicles."

<sup>7</sup> "Department of Defense authorization for appropriations for Fiscal Year (FY)

2015 and the future years defense program." According to GEN Raymond Odierno, "The analysis found that the Stryker, as currently designed, lacks sufficient off-road mobility to maneuver in the same operational environment as armored brigade combat team (ABCT) combat vehicles. Although the Stryker provides improved force protection against underbody threats, it lacks protection against direct fire and indirect fire threats." This was in 2015 and little (nothing) has changed.

<sup>8</sup> Eric Miller, "Stryker Problems Highlight Testing Shortfalls," *Defense News*, Nov. 1, 2004, <http://pogoarchive.pub30.convio.net/pogo-files/alerts/national-security/ns-siav-20041101.html>. In an attempt to convince the House Armed Services Committee to block purchase of two Stryker brigades' worth of platforms, retired COL Douglas Macgregor stated that the Stryker lacks the "firepower, protection, mobility and organic logistical support to be a full-dimensional warfighting organization, and its operational utility will continue to be limited to peace support or paramilitary police operations."

<sup>9</sup> "AUSA 2019: General Dynamics unveils Stryker A1 IM-SHORAD air-defense armored vehicle," Army recognition, Oct. 22, 2019, [https://www.armyrecognition.com/ausa\\_2019\\_news\\_show\\_daily\\_coverage\\_report\\_united\\_states/ausa\\_2019\\_general\\_dynamics\\_unveils\\_stryker\\_a1\\_im-shorad\\_air\\_defense\\_armored\\_vehicle.html](https://www.armyrecognition.com/ausa_2019_news_show_daily_coverage_report_united_states/ausa_2019_general_dynamics_unveils_stryker_a1_im-shorad_air_defense_armored_vehicle.html).

<sup>10</sup> Department of Defense FY 2020 budget estimates: justification book of missile procurement, Army, March 2019. <https://www.asafm.army.mil/Portals/72/Documents/BudgetMaterial/2020/Base%20Budget/Procurement/02%20Missile%20Procurement%20Army.pdf>. Page 33 discusses the addition of the mobile experimental high-energy laser to the SHORAD platform, but it also uses some questionable phrases such as "long-term capability."

<sup>11</sup> Bartles and Grau, "A New System Preserves Armor Dominance of the Future Battlefield: BMPT 'Terminator-2.'"

<sup>12</sup> CPT Charles K. Bartles and Dr. Lester W. Grau, *The Russian Way of War*, Fort Leavenworth, KS: Foreign Military Studies Office, 2016. Discusses Russian "operational art" and how it influences their command and staff structure.

<sup>13</sup> Field Manual (FM) 34-35, *Armored Cavalry Regiment and Separate Brigade Intelligence and Electronic Warfare Operations*, Chapter 2 (organization) describes the ACR's organization in the 1090s with two tank platoons and two Bradley scout platoons per company.

<sup>14</sup> CPT Nicolas J. Fiore, "Defeating the Russian Battalion Tactical Group," *ARMOR*, Spring 2017. Describes the Russian battle tactical group and provides an overview of their use in Ukraine.

<sup>15</sup> Transcript of taped interview with officers of Troop E, 2/2 ACR, and scout-platoon leader from Troop G, 2/2 ACR, March 3, 1991, [https://mcoepublic.blob.core.usgovcloudapi.net/library/ABOLC\\_BA\\_2018/Research\\_Modules\\_B/73\\_Easting/2-2\\_ACR-1.pdf](https://mcoepublic.blob.core.usgovcloudapi.net/library/ABOLC_BA_2018/Research_Modules_B/73_Easting/2-2_ACR-1.pdf). This source provides

a thorough overview of the tactical-level battle at 73 Easting and includes a number of cases where Bradleys were used to provide direct-fire assistance for Abrams. Examples can be found on Pages 8, 15, 19, 22, 23, 27 and 29.

<sup>16</sup>Ibid.

<sup>17</sup>CPT Michael Gollaher, "Two Scouts Under Fire Helped Injured Buddies During Night Battle," *ARMOR*, May-June 1991. This article encapsulates the argument. Bradleys were able to provide effective direct-fire support but were not survivable in the face of enemy armor.

<sup>18</sup>Tony Wunderlich, "Lucky Scouts Dodge 'Big Bullets' That Ripped Their Bradley," *ARMOR*, May-June 1991. This article describes how an Iraqi armor-piercing, fin-stabilized, discarding sabot tank round was able to blow through a Bradley without harming the crew. It is important to remember that Iraqi sabots were made of maraging steel rather than depleted uranium and lacked the latter's post-penetration pyrophoric effects, which would have probably killed the entire crew. This article also describes how a single 12.7mm round disabled a Bradley.

<sup>19</sup>Vince Crawley, "Minute by minute, death by death," *Stars and Stripes*, March 9, 1991, <https://www.stripes.com/news/minute-by-minute-death-by-death-1.6319>. Describes a number of casualties among Bradley crewmen that occurred during the Battle of 73 Easting.

<sup>20</sup>U.S. General Accounting Office report to the chairman, subcommittee on regulation, business opportunities and energy, Committee on Small Business, House of Representatives, "Operation Desert Storm early-performance assessment of Bradley and Abrams," January 1992, <https://www.gao.gov/assets/220/215553.pdf>. Pages 18-19 include a discussion of reverse speed issues.

<sup>21</sup>Bartles and Grau, "The Russian Way of War." Includes an explanation of "evolutionary" acquisitions and elaborates on its advantages.

<sup>22</sup>I have personally seen the unmanned turret Abrams prototype at the

Maneuver Center of Excellence's Armor Restoration Shop. As for the private-industry mockup, I saw a model of it at the Maneuver Warfighter Conference in 2019 and confirmed that it was conceived as an Abrams chassis with a new unmanned turret.

<sup>23</sup>Grau, "Preserving Shock Action: A New Approach to Armored Maneuver Warfare": "It was not an infantry fighting vehicle (BMP) and the Russians were not discounting the value of mechanized infantry in the combined-arms team. They were recognizing that the mechanized infantry may not be at the critical point at the critical time."

<sup>24</sup>Diane L. Urbina, "Lethal beyond all expectations: The Bradley Fighting Vehicle" – in Chapter 12 of George F. Hofmann and Donn A. Starry (editors), *Camp Colt to Desert Storm: The History of U.S. Armored Forces*, Lexington, KY; The University Press of Kentucky, the author discusses how the Bradley was steadily up-gunned and up-armored in response to the threat of Soviet armored forces.

<sup>25</sup>Ibid.

<sup>26</sup>Petri Mäkelä, "Check out Russia's Deadly 'Terminator' Tank That Was Built for Urban Warfare," *The National Interest*, Aug. 13, 2019: "There is also a Terminator-3 version that is based on the T-14 Armata platform. The issues with the T-14 have delayed the introduction of the Terminator-3 into the future."

<sup>27</sup>Tomas Malmlöf lecturing at the Center for Strategic and International Studies on "The Russian Military of 2035," May 24, 2017, <https://youtu.be/iKhOgYA2L30?t=1020>. Lecturer starts discussing procurement around the 17-minute mark.

<sup>28</sup>Mikhail Voskresenskiy, "Russian MoD Decides to Buy 'Terminator' Combat Vehicles – Here's Why," Aug. 25, 2017, <https://sptnkne.ws/fqtC>: "The Terminator 1 and the Terminator 2. They're both earmarked for export and haven't been purchased by the Russian Defense Ministry."

<sup>29</sup>"Finest Armour in Africa: Algerian Army Receives New Batch of T-90SA Battle

Tanks," Jan. 11, 2020, <https://military-watchmagazine.com/article/finest-armor-in-africa-algerian-army-receives-new-batch-of-t-90sa-battle-tanks>: "Serving alongside the T-90SA are BMPT-72 Terminator 2 tank-support vehicles, for which Algeria was the first foreign client."

<sup>30</sup>Bartles and Grau, "A New System Preserves Armor Dominance of the Future Battlefield: BMPT 'Terminator-2'": "In 2012, Kazakhstan, a country with a post-Soviet Army that somewhat resembles the Russian military in force structure and tactics, signed an agreement to purchase nine BMPTs on T-72 chassis, with deliveries starting in 2013. Apparently, the BMPT was perceived as a great success, and in April 2014, Kazakhstan signed another contract with Uralvagonzavod to produce the BMPT in Kazakhstan under a licensing agreement."

<sup>31</sup>Kyle Mizokami, "China's 'Terminator' (TSV) Is Bristling With Weaponry," Nov. 7, 2018, <https://www.popularmechanics.com/military/weapons/a24793656/china-terminator-tank-support-vehicle-is-bristling-with-weaponry/>.

<sup>32</sup>Sharoni and Bacon, "Forward Area Air-Ground Defense: Do We Need A Dual-Role Hybrid Air-Ground Defense System for the Armored Forces?"

## ACRONYM QUICK-SCAN

**ACR** – armored-cavalry regiment  
**ACT** – armored-cavalry troop  
**ADATS** – air-defense anti-tank system  
**ATGM** – anti-tank guided missile  
**APC** – armored personnel carrier  
**BCT** – brigade combat team  
**BMP** – *boyevaya mashina pekhoty* (Russian fighting vehicle)  
**CAB** – combined-arms battalion  
**ERA** – explosive reactive armor  
**FCS** – fire-control system  
**FY** – fiscal year  
**MBT** – main battle tank  
**MoD** – Ministry of Defense  
**MOS** – military-occupation specialty  
**SHORAD** – short-range air defense  
**TSV** – tank-support vehicle

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# Armored Brigade Combat Team Cavalry Squadron's Combat Trains during Large-Scale Combat Operations: Balancing Maintenance, Recovery, Freedom of Maneuver

by MAJ Gary M. Klein and  
CPT Ragan T. Rutherford

The squadron was planning to continue its reconnaissance east across the Ujen Bowl toward Razish, but its combat trains were about 20 kilometers back from the current forward-line-of-own-troops (FLOT) in the vicinity of Reyallem. The squadron leadership knew this was less than ideal to support even current operations, so the headquarters and headquarters troop (HHT) commander had started to move the combat trains to the western end of the Washboard the day before. Unfortunately the HHT commander did not have enough M88 recovery vehicles in the combat trains to move the squadron's non-mission capable (NMC) M1 Abrams and M2/M3 Bradley Fighting Vehicles (BFVs) in the maintenance collection point (MCP) in one movement.

Compounding this challenge, the squadron's new mission was about to send it another 10 kilometers east. This left the squadron in the precarious position of improving its current position – moving its combat trains from Reyallem (MCP1) to the western end of the Washboard (MCP2) – while simultaneously planning another MCP

for the eastern end of the Colorado Wash (MCP3). For at least a brief period of time, the squadron was going to have three MCPs.

How did the squadron end up with so many MCPs? How should the squadron arrange its leaders to lead these additional maintenance and recovery nodes? How can the squadron leadership create a maintenance common operational picture (COP) to enable it to track and regenerate combat power in multiple MCPs?

Cavalry-squadron doctrine provides a template for how to organize and arrange the squadron's sustainment and maintenance systems.<sup>1</sup> Unfortunately battlefield friction makes it challenging for leaders to arrange and operate the combat trains as neatly as doctrine describes it. The three MCPs in the introductory real-world vignette is one example. Squadron leadership must continually reorganize its sustainment and maintenance assets to improve the system, striving to bridge the inevitable gap between doctrine (an ideal solution) and the current battlefield situation.

The authors, both leaders within 1<sup>st</sup> Squadron, 1<sup>st</sup> Cavalry Regiment

Blackhawks, became keenly aware of the aforementioned gap in their combat trains' disposition during National Training Center (NTC) Rotation 20-01, and they sought to improve their position. Unfortunately the fast tempo of operations prohibited them from closing this gap entirely. However, they learned valuable lessons about their combat trains they share in this article to help leaders navigate the inevitable friction units will encounter while sustaining themselves during large-scale combat operations.

An armored brigade combat team (ABCT) cavalry-squadron's combat trains contain a number of critical resources and capabilities, but this article will focus on three:

- Command and control;
- Recovery; and
- Maintenance.

Ideally, these three activities operate simultaneously without interference, but reality is rarely so clean. Leaders must consider a number of questions related to these three capabilities:

- When should leaders recover NMC equipment to another location, and when should they fix it in place?
- What conditions may cause this

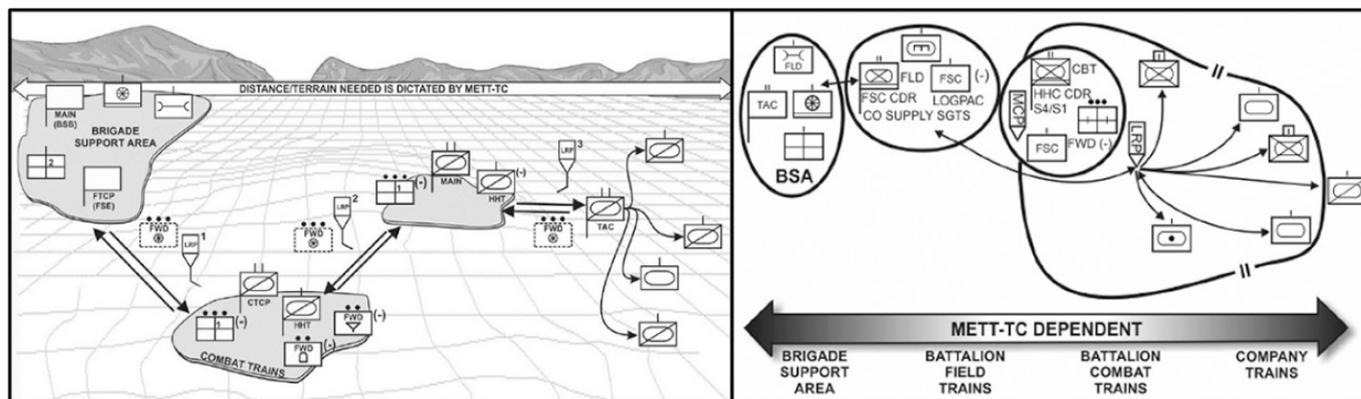


Figure 1. Doctrinal squadron/battalion trains. The left side of the illustration, from Army Technical Publication (ATP) 3-20.96, does not show the MCP in the squadron's combat trains, but it does describe it in its text. (Left-side illustration adapted from Figure 7-4, ATP 3-20.96, *Cavalry Squadron*; right-side illustration is adapted from Figure 7-3a, ATP 3-90.5, *Combined-Arms Battalion*)

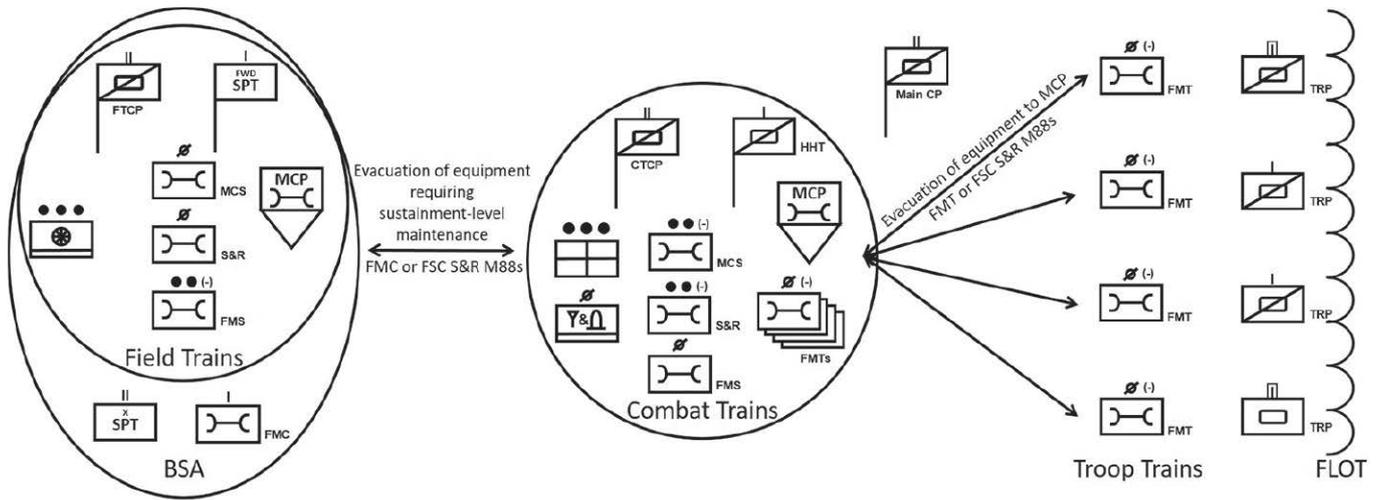


Figure 2. Echeloned squadron trains and maintenance and recovery assets. This figure and Table 1 describe the Blackhawk Squadron’s standard distribution of maintenance personnel and recovery vehicles. They also describe what recovery sections or assets are responsible for evacuation among the different maintenance nodes (i.e. troop trains, combat trains, MCP and field trains). (Graphic by the authors)

	BSA / FMC	Squadron field trains FSC CP	Squadron combat trains / HHT CP *Very Small Aperture Terminal	Troop trains / FMTs
M88s	4	0	2	4 (1 each)
M984s	3	1	1	0
91As	4x each in FMC’s M88s	0	11x 91As from tank-troop FMT split between troop and combat trains	
91Ms		0	9x 91Ms per cavalry-troop FMT split between troop and combat trains	
91Hs		7x 91Hs from FMS split between field and combat trains		
91Bs		15x 91Bs from FMS split between field and combat trains		0
92As		1	6	0

Table 1.

- standard to change?
- How do current and future reconnaissance and security (R&S) operations impact these activities?
  - Whose responsibility is it to make these decisions, and who must command-and-control these activities once leaders make a decision?

These are a few of the questions Cavalry leaders must consider to employ their combat trains effectively, enable the squadron’s R&S operations and achieve their purpose of answering the commanders’ priority intelligence requirements.<sup>2</sup>

The aforementioned questions allude to the fact that leaders must understand the current mission and operational variables to develop and implement successful sustainment concepts of support. Furthermore, units must develop and practice standard operating procedures (SOPs) that enable them to succeed in a range of situations. This article will explain some of the challenges the Blackhawk Squadron faced during NTC Rotation 20-01 and present some options for how units might address these challenges in the future.

Squadron leadership must have a

shared understanding of how to lead, organize and arrange the combat trains; how to balance the potentially competing demands of maintenance, recovery and freedom of maneuver; and how to establish a maintenance COP that helps leaders sustain continued R&S operations.

### Cavalry-squadron combat trains

The squadron’s combat trains traditionally contain the squadron’s combat-trains command post (CTCP), the HHT command post (CP), the squadron aid station (SAS), an emergency

resupply of Class III and V, and the MCP (Figure 1, left side).<sup>3</sup> Although it is not specifically referenced in Cavalry doctrine, the combat trains – specifically the MCP – usually contain a portion of the forward-support company (FSC)’s maintenance platoon to return battle-damaged and NMC equipment to the fight as soon as possible.<sup>4</sup> The Blackhawk Squadron’s combat trains include most of the FSC’s maintenance control section (MCS) and service and recovery (S&R) section, the squadron’s shop stock, elements of the cavalry and tank troops’ field-maintenance teams (FMTs), and a team from the field-maintenance section (FMS) to support wheeled and light track maintenance (Figure 2 and Table 1).<sup>5</sup>

With this SOP, the Blackhawk Squadron combat trains include four key leaders: the squadron S-4, the HHT commander and platoon-level leadership from the SAS and maintenance platoon.<sup>6</sup> Doctrinally the squadron S-4 controls the squadron’s trains, and the

HHT commander has supervisory responsibility over the combat trains. However, the Blackhawk Squadron gave the HHT commander operational control over all elements in the combat trains to leverage his leadership experience and authority – a decision that enabled the squadron’s sustainment operations at NTC.<sup>7</sup>

In addition to the added weight of a troop commander, Blackhawk’s decision to place the HHT commander in command of the combat trains creates redundant leadership there. This enables the S-4, HHT commander or HHT executive officer to leave the CTCP and trains for the squadron main CP or the field trains to conduct planning and support activities.

Finally, if the combat trains have to split – like in the case of creating multiple MCPs, which will be covered in the next section of this article – these leaders can separate to lead the additional node(s).

Another notable aspect of the

Blackhawk Squadron’s trains is the baseline disposition of the squadron’s maintenance and recovery assets (Figure 2). In line with doctrine, the Blackhawk Squadron SOP prioritizes forward maintenance and recovery support by placing the four FMT M88s and contact trucks in the troop trains, along with a portion of each team’s tank and BFV mechanics (91A and 91Ms).<sup>8</sup> The rest of each FMT’s 91A and 91Ms are located in the combat trains, along with the FMTs’ forward repair system (FRS) and bench-stock containers.<sup>9</sup> The FRS and bench-stock containers are located in the combat trains to not hinder the mobility of the troops’ trains. This arrangement places all the squadron’s 91A and 91Ms in either the troop or combat trains.

Cavalry-squadron doctrine is not unique in organizing its FMTs forward in the troop and combat trains. Combined-arms=battalion doctrine organizes its FMTs into the company and combat trains as well (Figure 1, right side).<sup>10</sup> The forward placement of all

	Option	Assets required	Advantage(s)	Disadvantage(s)
1a	Backup / reinforcing support from troop FMT M88s	M88s from troop FMT(s)	Reinforcing support resourced internally	-Hinders troop recovery -May reduce troop trains’ freedom of maneuver
1b	Backup / reinforcing support from BSB’s FMT M88s	M88s from BSB’s FMC S&R section	Maintenance and recovery assets remain postured to fix forward	-Commits brigade’s recovery reserves -May limit BSB’s freedom of maneuver
2	Recover NMC vehicles to field trains / BSA for passback maintenance support	M88s from FSC or FMC S&R sections	BSB’s or squadron’s M88s are able to retain their standard recovery posture	-To fix combat platforms (M1s and M2s) in field trains, commanders must send FMT mechanics there, reducing forward-maintenance capacity
3	Create multiple MCPs	None	Retain freedom of maneuver if reinforcing support or passback maintenance are not feasible options	-Squadron’s M88s are decisively engaged with recovery operations -Combat trains cannot displace in one movement -Additional nodes means additional personnel dedicated to security -Must sustain Soldiers and maintain vehicles at multiple MCPs

Table 2. Options for MCPs unable to displace in one movement.

the brigade's 91A and 91Ms means the only tank and BFV mechanics further back than the squadron or battalion combat trains are the M88 recovery-vehicle operators in the brigade-support battalion (BSB) FMC. In effect, the brigade does not have any field-maintenance capability for its combat platforms (M1 Abrams and M2/M3 BFVs) in its field trains or brigade-support area (BSA) unless leaders deliberately adjust their task-organization or placement of 91As and 91Ms.<sup>11</sup>

## Balancing maintenance, recovery, freedom of maneuver

Leaders must balance their desire to conduct maintenance forward with the realization that the squadron's combat and troop trains can lose their freedom of maneuver – a fundamental of reconnaissance – if they are overwhelmed with NMC vehicles.<sup>12</sup> At the troop-level, doctrine states that “[i]f the field-maintenance team cannot repair the equipment quickly on-site, evacuate the component to the squadron's [MCP].”<sup>13</sup> Unfortunately the authors learned firsthand that the need to evacuate NMC equipment to the combat trains to retain troop freedom of maneuver can have the second-order effect of limiting the squadron combat trains' freedom of maneuver.

Cavalry troops have little choice but to evacuate NMC vehicles that require lengthy amounts of time to fix, so the squadron must develop options to retain its combat trains' freedom of maneuver. Ideally, the troops' FMTs in the combat trains are able to repair NMC combat platforms recovered there relatively quickly. Alternatively, the combat trains can hold NMC vehicles until additional part(s) arrive from the brigade's supply-support activity, still allowing the FMTs to repair the vehicles in the combat trains.

In either case, the HHT commander must prepare to displace the combat trains, including any NMC vehicles. Given the fact that there are two M88s in the combat trains, this starts to become problematic if there are more than two NMC combat platforms there. Given the combat trains' disposition, two NMC combat platforms is

the threshold at which the combat trains can still “displace in one movement.”<sup>14</sup> Once the combat trains exceeds two NMC combat platforms, the squadron is forced to look for other options to retain its freedom of maneuver.

Once the combat trains are no longer able to displace in one movement using its organic S&R M88s, the squadron has three options to retain its freedom of maneuver (Table 2). First, leaders can provide reinforcing support by consolidating the troops' FMT M88s in the squadron combat trains or by requesting reinforcing M88s from the BSB's FMC S&R section. Second, the commander can evacuate NMC platforms with its S&R M88s to the squadron field trains, typically located in the BSA, or request assistance from the BSB's FMC S&R section to accomplish the same task.

Finally, the commander can create additional MCPs and bound NMC equipment from one MCP to subsequent MCPs on the battlefield. Each of these courses of action has advantages and disadvantages (Table 2), and some require assets that may or may not be available depending on the current mission variables.

The first option to displace the MCP and combat trains with more than two NMC combat platforms is to gain reinforcing support by consolidating the squadron's M88s or by requesting M88 support from the BSB.<sup>15</sup> If the squadron orders its FMTs to provide reinforcing support to the FSC's S&R section, this solves the immediate problem of the combat trains' mobility, but it hinders the troops' ability to conduct its own recovery operations and may limit the troop trains' of freedom of maneuver.

This may be a good solution if M88 support is only needed for a short period of time or if the troops can go without their M88s for a specified period of time (for example, during more stationary security operations) because the commander can solve the problem without requesting assistance from another headquarters. However, it runs counter to the doctrinal concept of keeping maintenance assets “as far forward as the tactical

situation permits to return inoperable and damaged equipment to the battle as quickly as possible.”<sup>16</sup>

To retain the squadron's ability to conduct maintenance and recovery operations forward, the squadron can request reinforcing support from the brigade's BSB. Unfortunately, the FMC has limited reinforcing capacity for recovery support, and there may not be enough M88s available in the BSB's FMC – depending on the brigade's operational readiness (OR).<sup>17</sup> Some commanders may commit the FMC's M88s early to reinforce battalions or the squadron if they have one or more NMC M88s.

Also, the BSB may need to retain these M88s to move NMC vehicles in the BSA. Reinforcing recovery support is the preferred option to retain the combat trains' freedom of maneuver in most cases, but this option may become difficult depending on the brigade's OR rate.

Another option is to recover NMC combat platforms back to the squadron's field trains in the BSA. R&S doctrine implores planners to specify when this is necessary – without citing specific examples – but maintenance doctrine reminds us that this option requires moving more maintenance assets and personnel to the field trains to enable maintenance operations there.<sup>18</sup>

According to current modified tables of organization and equipment, the brigade only has four tank and BFV mechanics in the BSA, but these maintainers are dedicated to the FMC's M88s for recovery operations, not maintenance operations. This disposition differs from historical maintenance concepts of support that included maintenance pass-back support.<sup>19</sup> This does not mean that the squadron cannot conduct maintenance activities on its combat platforms in the field trains, but commanders must either send maintainers back to the field trains with their NMC vehicles or task-organize 91A or 91Ms to the FSC's FMS.<sup>20</sup>

In some cases, a combat platform may be damaged to such an extent that it requires evacuation for sustainment maintenance. If this is true, the lack of

tank and BFV mechanics in the BSA is not an issue. Doctrinally, the BSB's FMC "serves as the central entry and exit point for all equipment requiring evacuation for sustainment maintenance."<sup>21</sup>

The decision to evacuate NMC combat platforms back to the squadron field trains retains the troops' and combat trains' freedom of maneuver, and it enables the brigade to maintain its standard recovery stance. However, it may come at the cost of forward-maintenance activities. In the best-case scenario, if commanders can afford to reallocate maintainers to the field trains, this option may slow the return of combat platforms to the troops. In the worst-case scenario, the field trains collect excess NMC vehicles, which jeopardizes the field trains and BSA's freedom of maneuver.

Either way, the decision to recover vehicles back to the squadron's field trains in the BSA must be a deliberate one that includes ensuring M1 Abrams and M2/M3 BFV mechanics and tools are available to fix these platforms.

The third option is for the squadron to temporarily create more than one MCP. As briefly touched upon in the opening vignette, the authors found themselves in this situation during NTC 20-01, and although it was less than ideal, they were able to negotiate the challenges by leveraging the HHT commander's leadership. If the combat trains were unable to move all the NMC vehicles in the MCP, the S-4 could move the CTCP and the bulk of the combat trains, and establish a new

MCP closer to the FLOT, while the HHT commander, with recovery support, assumed the task of recovering the NMC vehicles from the existing MCP to the new MCP in multiple movements (Figure 3).

Rather than being constrained by its rear-most, immobile pieces of equipment, multiple MCPs enabled the squadron to continue sustainment operations and maintain its "mobility so that it may support the [R&S] mission at extended ranges" by creating another MCP closer to the FLOT.<sup>22</sup> This places the S-4 and the CTCP closer to the troop trains so that he or she can maintain communication and sustainment reporting with the troops.

Also, this allows the portion of the troops' FMTs in the combat trains and their maintenance capabilities (lift, shop and bench stock, etc.) to remain closer to the troop trains, supporting their maintenance requirements. By creating another MCP, the squadron can continue its logistics planning and position its alternate CP (i.e. the CTCP) closer to the main CP, and enable the squadron's freedom of maneuver through close access to emergency ammunition and fuel while simultaneously recovering vehicles from the previous MCP(s).

### Multiple MCPs

Having multiple MCPs has its advantages, but it creates more challenges and support requirements as well. Having multiple MCPs enables the combat trains' freedom of maneuver by restoring its mobility, but it often

necessitates more than one movement to displace. If attacked, leaders may have to temporarily abandon some immobile equipment during survivability moves. Also, multiple MCPs will decisively engage the squadron's recovery assets until all NMC vehicles are consolidated in the new MCP. Finally, each additional MCP is another location that must be secured and sustained, requiring additional maintenance personnel to conduct security operation and additional time for logistics-resupply operations.

While more MCPs enable the squadron to continue operations, they hinder the squadron's ability to rapidly displace and regenerate combat power. As the squadron's lines of communication (LoCs) get longer, M88s and like vehicles for recovery move further from the older MCP(s) and make it more difficult to recover vehicles from there.

Also, leaders prioritize recovering vehicles that have parts on hand, leaving those with long-lead-time parts at MCPs further back. At that point, the squadron inherits another logistical problem: resupplying multiple MCP(s). The HHT commander and first sergeant must assume the responsibility for resupplying the MCP(s), and this creates more demands on their already busy timelines. Until the squadron transitions to more stationary operations, regenerating its lost combat power becomes more and more difficult as its LoCs get longer.

Despite these disadvantages, the squadron may be required to create

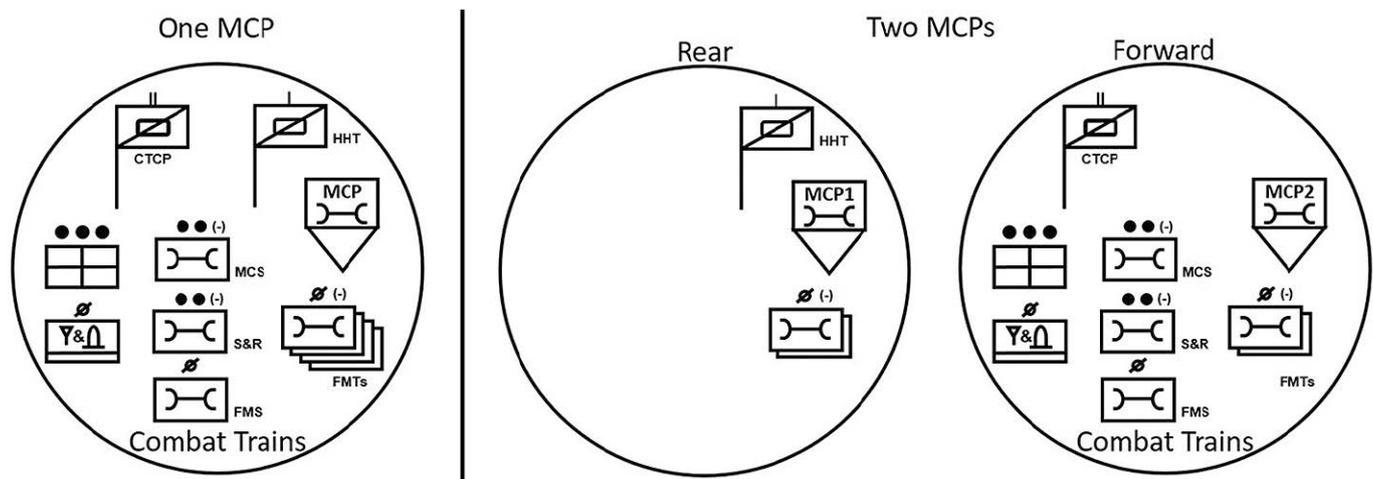


Figure 3. Proposed composition of combat trains with two MCPs.

Maintenance node		Location	Recovery assets	
Troop trains	A Troop	AB 12345678	D831 (M88)	
	B Troop	AB 12545878	D841 (M88)	
	C Troop	AB 12746078		
	D Troop	AB 11045878	D861 (M88)	
Combat trains		AB 10545278	D818, D819, D851 (M88s), D813 (M984)	
Field trains		AB 05046278	D814 (M984)	
NMC vehicle tracker				
Vehicle	Fault	Location	Vehicle	Fault
A12	Prop shaft	Troop trains	HHT96R	Transmission
B21	DVDB	Troop trains	HQ20	Class III leak
C15	Thrown track	AB 12446078		
C26	TDA motor	Combat trains		
D31	Class III leak	AB 11045878		

**Table 3. Maintenance running estimates tracker with example data.**

multiple MCPs if reinforcing support is not available and the brigade or squadron does not wish to execute pass-back maintenance to the field trains or BSA.

Regardless of the option selected to retain the trains' freedom of maneuver, leaders must establish maintenance time limits and evacuation timelines, and specify conditions for recovery operations to determine when evacuation to the different trains is advantageous.<sup>23</sup> At a minimum, leaders should establish these conditions within their operations orders, but ideally, they establish and train these conditions as part of their tactical SOPs.

Comparing current doctrine, ATP 3-20.97, *Cavalry Troop*, mentions the idea of time guidelines to enable repair or recovery decisions. ATP 4-33, *Maintenance Operations*, discusses some of the things that commanders should consider when developing maintenance time limits. ATP 3-20.5, *Combined-Arms Battalion*, references specific examples of evacuation timelines, and ATP 3-20.96, *Cavalry Squadron*, mentions that leaders must determine triggers in coordination with supporting elements across the brigade for when evacuating equipment to the trains is advantageous.<sup>24</sup>

ATP 3-20.5 suggests a standard whereby "repairs requiring up to two hours are conducted at company trains; two- to six-hour repairs at the combined-arms battalion MCP; and any repairs requiring greater than six hours go to the field trains."<sup>25</sup> Leaders must remember that the option to recover vehicles to the field trains must consider whether the brigade, BSB and squadron commanders' plans – specifically, the disposition of the brigade's tank and BFV mechanics – support executing maintenance in the field trains and BSA.

## Maintenance running estimates

To enable the squadron and troop commanders to make maintenance and recovery decisions, the squadron must include maintenance running estimates as part of its COP. Maintenance running estimates enable commanders to determine where to conduct maintenance, when to recover vehicles to a different maintenance node (i.e. troop trains, combat trains, MCP and field trains), when to adjust the standard maintenance time limits, and how to retain the trains' freedom of maneuver.

To enable these decisions, the staff must develop maintenance-related

friendly force information requirements (FFIR) and continuously update the squadron's running estimates using these FFIR, or risk unnecessary maintenance delays or the squandering of future combat power. Three keys to enable the establishment of the squadron's maintenance COP are FFIR and reporting and tracking systems. Leaders across the squadron must report timely and accurate maintenance information to update the squadron's COP.

The first step to establish maintenance running estimates is determining what information must be reported to enable the commander to make maintenance and recovery decisions. The 1-1 Cav's experience during NTC 20-01 highlighted the need-to-know of four critical FFIR:

- Location and fault(s) of all NMC equipment;
- Part availability for NMC equipment;
- The location and capabilities of each maintenance node; and
- Current recovery capabilities at each node.

The list of NMC equipment at the MCP(s) was particularly important for commanders to continue to account for equipment and plan for the

2-1 CAV	M1	M2	M1064	Recon Squad	Javelin	M88
Squadron	/14	/41	/6	/6	/12	/6
HHT		/2				
A		/13 BFST /1	/2	/1	/4	/1
B		/13 BFST /1	/2	/1	/4	/1
C		/13 BFST /1	/2	/1	/4	/1
D Co	/14	BFST /1				/1
D FSC	M978	/	M1120	/		/2

**Legend**

HQ OO Maintenance Fault

~~HQ OO~~ Enemy Kill Catastrophic

~~HQ OO~~ Enemy Kill

~~M~~ Mobility Kill

~~S~~ Fire Power Kill

~~C~~ Communication Kill

1-1 CAV Combat Power		
Nomenclature	OH	FMC
ReTrans	3	
1068		
STT		
Raven		
M1074/M1075	5	
M1 BLADE	3	
RLR MINE CL TNK MTD	1	
TYQ-93CV4 Work Station	2	

Enablers/Attachments		
Bumper # VX Type Parent Org	Bumper # VX Type Parent Org	Bumper # VX Type Parent Org
Bumper # VX Type Parent Org	Bumper # VX Type Parent Org	Bumper # VX Type Parent Org
Bumper # VX Type Parent Org	Bumper # VX Type Parent Org	Bumper # VX Type Parent Org

### HHT

TAC	MAN	MEDIC
HQ66  HQ33	HQ5  HQ2	HHT50  HHT511
	HQ8  HQ37	HHT500  HHT501
	HQ31  HQ35	HHT52  HHT53
	HQ20  HQ30	HHT54  HHT55
	HQ80  HQ875	
	HQ81R  HQ83R	
	HQ82R  HQ85R	
	HQ86R  HQ87R	
	STT875  HQ31	

### A TRP

Headquarters	Fires/UAS	Wheeled
A66  A90	A401  A402	A400  A7
A55  A77	RAVEN  RAVEN	A4
1st Platoon		Medics
A11  A14	A21  A24	HHT56
A12  A15	A22  A25	FMT
A13  A16	A23  A26	D833  D831
		D835  D830

### B TRP

Headquarters	Fires/UAS	Wheeled
B66  B90	B401  B402	B7  B70X
B55  B77	RAVEN	B4
1st Platoon		Medics
B11  B14	B21  B24	HHT57
B12  B15	B22  B25	FMT
B13  B16	B23  B26	D843  D841
		D845  D840

### C TRP

Headquarters	Fires/UAS	Wheeled
C66  C90	C401  C402	C7  C400
C55  C77	RAVEN  RAVEN	C4
1st Platoon		Medics
C11  C14	C21  C24	HHT58
C12  C15	C22  C25	FMT
C13  C16	C23  C26	D852  D851
		D855  D850

### D TRP

Headquarters			
D66	D55	D90	D77
D4	D863	D865	HHT59
1st Platoon (15/16)			
D11	D12	D13	D14
2nd Platoon (16/16)			
D21	D22	D23	D24
3rd Platoon (14/16)			
D31	D32	D33	D34

### D FST

DISTRO	Headquarters	S&R	
D26  D237  D315	D6  D7	D813  D814	
D232  D238  D316	D55  D120	D818  D819	
D233  D239  D317	MAINTENANCE		
D234  D240  D318	D86  D8	D815	
D235  D4FL  D319	D204  D801	DFAC	
D236	D806  D807	D130  D131	
	D822	D132  D133	
	D800  D820	D135  D134	
DISTRO		D136	
D321  D322			

Figure 4. 1st Squadron, 1st Cavalry Regiment, combat-power tracker. (Graphic by CPT Max Banerjee)

displacement of the squadron's combat trains. Collectively these maintenance running estimates (Table 3), combined with the squadron combat power tracker (Figure 4), enabled commanders to decide where to conduct maintenance, when to recover NMC vehicles to a different maintenance node and how to prepare for future operations.

Maintenance running estimate trackers must be updated from a combination of routine situation reports, battle-update briefs (BUBs) and periodic maintenance updates from the squadron's trains. Troops' routine situation reports should include information on NMC vehicles – whether they were combat losses or maintenance faults – and the locations of troop and combat trains. BUBs provide another venue for confirming and refining running estimates, including planned movements of the squadron trains during the next 24-48 hours and maintenance updates from the troops.

Finally, periodic maintenance updates from the squadron's combat and field trains provide critical updates on NMC vehicle locations and maintenance status. Updates from the combat trains are especially important, as maintenance activities there are taking place under the supervision of the HHT commander and away from the line-troop commanders. While the squadron executive officer, maintenance officer and field-maintenance technician are responsible for leading the field-maintenance effort itself, the HHT commander must plan, recommend and supervise the combat trains in the context of its sustainment, mobility and tactical emplacement within the squadron's larger operations.

This includes potentially splitting the combat trains if conditions require that. This is a significant increase in the HHT commander's maintenance responsibilities as compared to garrison – where HHT does not even have a field-maintenance team of its own – and the squadron executive officer and HHT commander must synchronize plans and priorities daily to ensure unity of effort.

## Conclusion

Maintenance operations are

demanding enough in garrison, but they face increased challenges during tactical operations. Inevitable drops in the squadron's OR rate often create competing maintenance and recovery demands that can challenge the MCP(s) and trains' freedom of maneuver. The squadron has three options to overcome these challenges: request reinforcing M88 support; initiate pass-back maintenance; or create more MCPs. These three options for retaining the combat trains' freedom of maneuver have advantages and disadvantages, and leaders must understand the entire maintenance system from the troop to the brigade level to enable optimal maintenance and recovery decisions.

To sustain continued combat operations, squadron leaders must have a shared understanding of how to balance the potentially competing demands of maintenance and recovery, and the trains' freedom of maneuver. All commanders must contribute to these efforts by reporting accurate FFIR that update maintenance running estimates and establish a COP to enable decision-making.

Finally, the HHT commander must have an intimate knowledge of the brigade's maintenance and recovery system to lead the combat trains and enable combat power regeneration. Regenerating and maintaining combat power are not easy tasks during continuous operations, but leaders must learn and apply lessons like those mentioned here to ensure successful R&S during large-scale combat.

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## Notes

<sup>1</sup> ATP 3-20.96, *Cavalry Squadron*, Washington, DC: Government Printing Office, 2016.

<sup>2</sup> Field Manual (FM) 3-98, *Reconnaissance and Security Operations*, Washington, DC: Government Printing Office, 2015.

<sup>3</sup> ATP 3-20.96.

<sup>4</sup> ATP 4-33, *Maintenance Operations*, Washington, DC: Government Printing Office, 2019.

<sup>5</sup> The MCS attaches one 92A to support logistics automations in the field trains. The S&R section attaches one M984 to support recovery operations from the field trains. The FMS is primarily located in the field trains, but it attaches 91Bs and 91Hs to the combat trains to enable wheeled vehicle and light track maintenance there as necessary.

<sup>6</sup> It is advantageous to echelon the squadron's S-1 and S-4 leadership across the battlefield as well. We recommend splitting the S-1 section between the combat and field trains, and the S-4 section between the squadron main CP and the combat trains.

<sup>7</sup> Placing the HHT commander in charge of the combat trains is not unusual. See Paul M. Guzman, Anthony R. Davila and Marc A. DeLuca, “The Combat-Trains Command Post in the Stryker Brigade Combat Team’s Cavalry Squadron,” *ARMOR*, January-March 2016; and Kyle S. Marcum and Andrew J. Prunty, “Fighting the Combat-Trains Command Post in a Decisive-Action Training Environment,” *ARMOR*, January-March 2016.

<sup>8</sup> ATP 4-33.

<sup>9</sup> NTC Ops Group, “Combined-Arms Battalion Maintenance,” *The Company Leader*; accessed May 9, 2020, <http://companyleader.themilitaryleader.com/2020/05/09/combined-arms-battalion-maintenance/>.

<sup>10</sup> ATP 3-90.5, *Combined Arms Battalion*, Washington, DC: Government Printing Office, 2016.

<sup>11</sup> ATP 4-33.

<sup>12</sup> FM 3-98.

<sup>13</sup> ATP 3-20.97, *Cavalry Troop*, Washington, DC: Government Printing Office, 2016.

<sup>14</sup> ATP 3-20.96.

<sup>15</sup> Reinforcing support is mentioned in modern maintenance doctrine, and it is specifically referenced in modern support relationship doctrine, but it is no longer deliberately described as a

maintenance support method like it was prior to Army modularization. See ATP 4-33 for modern mentions of reinforcing maintenance support; FM 6-0, *Commander and Staff Organization and Operations*, Washington, DC: Government Printing Office, 2014, for modern support relationships doctrine; and FM 4-30.3, *Maintenance Operations and Procedures*, Washington, DC: Government Printing Office, 2004, for a description of the historical “backup / reinforcing support method.”

<sup>16</sup> ATP 4-33.

<sup>17</sup> Ibid.

<sup>18</sup> ATP 3-20.96; ATP 4-33.

<sup>19</sup> FM 4-30.3, *Maintenance Operations and Procedures*.

<sup>20</sup> Garrick L. Cramer and Jeffrey P. Kelley, “Passback Maintenance in a Decisive-Action Operation,” [www.army.mil](http://www.army.mil), May 29, 2018, [https://www.army.mil/article/204474/pass\\_back\\_maintenance\\_in\\_a\\_decisive\\_action\\_operation](https://www.army.mil/article/204474/pass_back_maintenance_in_a_decisive_action_operation); accessed May 3, 2020.

<sup>21</sup> ATP 4-33.

<sup>22</sup> FM 3-98.

<sup>23</sup> ATP 3-20.96.

<sup>24</sup> ATP 3-20.97 and ATP 4-33.

<sup>25</sup> ATP 3-90.5.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**ATP** – Army technical publication  
**BFV** – Bradley Fighting Vehicle  
**BSA** – brigade-support area  
**BSB** – brigade-support battalion  
**BUB** – battle-update brief  
**COP** – common operational picture  
**CP** – command post  
**CTCP** – combat-trains command post  
**FFIR** – friendly force information requirements  
**FLOT** – forward-line-of-own-troops  
**FM** – field manual  
**FMC** – forward-maintenance company  
**FMS** – field-maintenance section  
**FMT** – field-maintenance team  
**FRS** – forward repair system  
**FMS** – field maintenance section  
**FSC** – forward-support company  
**HHT** – headquarters and headquarters troop  
**LoC** – lines of communication  
**MCCC** – Maneuver Captain’s Career Course  
**MCP** – maintenance collection point  
**MCS** – maintenance-control section  
**NMC** – non-mission capable  
**NTC** – National Training Center  
**OR** – operational readiness  
**R&S** – reconnaissance and security  
**SAS** – squadron aid station  
**SOP** – standard operating procedure  
**S&R** – service and recovery

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# Section Gunnery and Armored Brigade Combat Team Lethality

by CPT Zachary J. Matson

The U.S. Army continues to prepare for large-scale combat operations (LSCO) through tough, realistic training against a near-peer threat.<sup>1</sup> The bulk of America's conventional striking power – its armored brigade combat teams (ABCTs) – may struggle to maintain qualified and lethal sections due to both high personnel changeover and the deliberate neglect of section gunnery. While Human Resources Command and Department of the Army control the former, brigade commanders have control over the latter. Choosing to neglect section gunnery generates three distinct problems:

- Section leaders never receive feedback and development on a

live-fire exercise (LFX) that bears more importance than any other like exercise;

- Battalion commanders reluctantly separate platoons into sections which reduces flexibility in planning; and
- Company commanders and platoon leaders do not have any validation or confidence in their sections' operational autonomy before separating them for survivability on a dispersed 21<sup>st</sup> Century battlefield.

While brigade and battalion commanders might see platoon Table VI as an opportunity to train both platoons and sections, the truth is this approach does not accomplish the best training or preparation for LSCO.<sup>2</sup>

## Infantry NCOs in Armor formations

What matters to Infantry Branch non-commissioned officers (NCOs) for promotion to sergeant first class is rated time as a rifle-squad leader, not as a section leader.<sup>3</sup> Infantry NCOs assigned to an ABCT must rotate through the rifle squads to accumulate rated time. Understandably, this priority of rated time creates a desire in NCOs to serve in the rifle-squad-leader role that is mandatory for promotion.

In addition to this discrepancy in rated time between a section and a squad, the rifle-squad leader is sure to get multiple repetitions in a squad LFX, while a section leader will not be



Figure 1. A Bradley Fighting Vehicle assigned to Company A, 3<sup>rd</sup> Battalion, 15<sup>th</sup> Infantry Regiment, 2<sup>nd</sup> Armored Brigade Combat Team, 3<sup>rd</sup> Infantry Division, advances to the first berm during a crew gunnery at Fort Stewart, GA, Sept. 25, 2019. (Photo by SPC Jordyn Worshek)

rated as objectively during platoon LFX because this is the platoon's evaluation with the platoon leader and platoon sergeant responsible for the results. More often than not, platoon leaders and sergeants maneuver their sections, with the section leader relegated to the role of track commander during platoon Table VI.

Comparatively, a squad LFX gives a squad leader the chance to formulate a plan, brief it, execute it and receive feedback for development, all while incorporating enablers under stress and with live rounds – truly an important exercise for leader development. Section leaders do not get the same opportunity because they are not offered the ownership of a section LFX.

## Section gunnery and leader development

Section gunnery and NCO development go hand in hand. Field-grade leaders who fail to schedule this event deny a portion of their formation invaluable training. Unfortunately, many ABCTs choose this route.<sup>4</sup>

Leader development is even more vital as formations on the battlefield of the future are expected to perform while geographically dispersed. GEN Mark Milley, who served as 39<sup>th</sup> Chief of Staff of the Army (CSA), described the future battlefield as requiring never-before-seen levels of unit dispersion. "Soldiers ... must split into small units and stay either on the move or under cover," warned the former CSA.<sup>5</sup> Mechanized rifle platoons will break up into sections to increase survivability on a modern battlefield; however, sections never train or operate independently in current unit training plans. Occasionally, a commander detaches a section from its platoon during combat-training-center rotations, but without the deliberate planning

and use of live rounds, section leaders do not benefit from this simulated training, as valuable as it is.

The Army knows it will fight dispersed, so it is a commander's responsibility to train those echelons and leaders with live rounds and incorporate that into our peacetime training calendars. Section Table VI qualification allows the battalion commander the flexibility to operate as either sections or platoons.<sup>6</sup> Sections will be the smallest unit we see in a mechanized formation on the future battlefield, and preparation begins now to dominate in close combat.

Section gunnery, often missing in ABCT training calendars, provides an important mechanism to make these formations lethal. By planning, resourcing and executing section gunnery, commanders provide their formations with more seasoned and capable NCOs who take their evaluation and performance more seriously. Successful completion of section Table VI provides battalion commanders with qualified sections that can both operate independently and survive on the future battlefield. Training at this echelon makes ABCTs more lethal and fulfills the promise of leader development that we as an Army focus on. It requires more time and effort, but the increased lethality and leader competence ensures mechanized formations – at any echelon – can fight and win tomorrow's wars.

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## Notes

<sup>1</sup> LTG Michel D. Lundy, "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow," *Military Review*, September-October 2018.

<sup>2</sup> Training Circular 3-20.0, *Integrated Weapons Training Strategy (IWTS)*, June 2019.

<sup>3</sup> Infantry (Career-Management Field 11) career-progression plan, Office Chief of Infantry, Fort Benning, GA.

<sup>4</sup> Through various interviews the author has had with peers who have served in 1<sup>st</sup> Infantry Division, 1<sup>st</sup> Cavalry Division, and 3<sup>rd</sup> Infantry Division.

<sup>5</sup> Sydney J. Freedburg Jr., "Miserable, Disobedient and Victorious: GEN Milley's Future U.S. Soldier," *Breaking Defense*, 5 October 2016, accessed from <https://breakingdefense.com/2016/10/miserable-disobedient-victorious-gen-milleys-future-us-soldier/>.

<sup>6</sup> Center for Army Lessons Learned Handbook 18-36, *Commander's Guide to Gunnery*, September 2018.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**CSA** – Chief of Staff of the Army  
**LFX** – live-fire exercise  
**LSCO** – large-scale combat operations  
**NCO** – noncommissioned officer

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# 'Rough-Cut CoAs' and Other Ways to Modify Military Decision-Making Process for Constrained Planning Timelines

by MAJ Gary M. Klein

Your brigade headquarters has just given your unit a tactical-operations order and told your battalion to execute in six days. The amount of time available seems adequate to conduct the military decision-making process (MDMP). However, your companies and platoons must conduct their own planning, and you need to conduct rehearsals, pre-combat checks and inspections to ensure readiness as well. For these reasons, the Army suggests a one-third, two-thirds rule whereby units use a maximum of one third of the available time for their own planning.<sup>1</sup> After reflecting on your planning timeline further, you realize you only have two days before you should issue your operations order. Suddenly, you worry that you do not have enough time to complete all the steps of MDMP.

Most leaders who have led MDMP or troop-leading procedures have experienced the tension between the desire to create the "perfect" operations order and the time available for planning. Planners can always use more time to add details, refine final products or develop branch plans. However, the reality is that planners have limited time and a duty to abide by the "one-third, two-thirds rule" (commanders use one-third of available time before mission execution for their planning, allocating the remaining two-thirds to subordinates). This rule enables their subordinate units to plan and prepare as well.

So the question then becomes: how can commanders and leaders modify MDMP to account for the time available? It is tempting to shorten the

amount of time allotted to each step of MDMP; but without enough time, some steps begin to lose their value. Instead, planners should revise, rearrange or eliminate steps to save time during MDMP.

This article presents three ways to modify MDMP, and it qualitatively compares the resulting three processes along two spectrums: the amount of time required and the number of options each process creates. Finally, this article will introduce and recommend the use of "rough-cut" courses of action (CoAs) to enable the commander's involvement in the planning process and CoA development guidance.

MDMP is a planning methodology designed to help commanders and their staffs understand their assigned mission and situation, develop a CoA and

Full MDMP, as per FM 6-0							Time:	Courses of action:	
Receipt of mission	Mission analysis	Course of action development (CoA 1) Course of action development (CoA 2)	CoA analysis (CoA 1)	CoA analysis (CoA 2)	CoA comparison	CoA approval	Orders production	Requires the most time	Generates and analyzes the most options
<b>Option 1) Modified MDMP; CoA comparison/selection prior to CoA analysis</b>							Requires the second most amount of time	Generates multiple CoAs, like #1, but doesn't analyze each	
Receipt of mission	Mission analysis	Course of action development (CoA 1) Course of action development (CoA 2)	CoA comparison	CoA analysis	CoA approval	Orders production			
<b>Option 2) Modified MDMP; "rough-cut" CoA comparison to enable a directed CoA</b>							Requires the third most amount of time	Generates multiple conceptual CoAs but only one complete CoA	
Receipt of mission	Mission analysis	"Rough-cut" CoA 1 "Rough-cut" CoA 2	CoA comparison	Course of action (CoA) development	CoA analysis	CoA approval	Orders production		
<b>Option 3) Modified MDMP; directed CoA</b>							Requires the least time	Generates only one CoA	
Receipt of mission	Mission analysis	Course of action (CoA) development	CoA analysis	CoA approval	Orders production				

Figure 1. Doctrinal, full MDMP and three modified MDMP options. The commander and staff are able to balance the desire to develop options with the amount of time required to plan by conducting CoA comparison (red block) and selecting a CoA earlier in the planning process.

create an operations order.<sup>2</sup> (See Figure 1 for a schematic representation of full MDMP as per Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*.) FM 6-0 states that in a time-constrained environment, commanders may direct their staffs to conduct only those steps necessary to reach the required decisions.<sup>3</sup> It goes on to specify five time-saving techniques:

- Increasing the commander's involvement;
- Limiting the number of CoAs to develop;
- Maximizing parallel planning;
- Increasing collaborative planning; and
- Using liaison officers between echelons.<sup>4</sup>

However, it does not make any recommendations as to which steps of

MDMP commanders and leaders might eliminate.

### Directed CoA (Option 3)

The most common way to abbreviate MDMP is for commanders to limit the number of CoAs to develop. Along these lines, commanders sometimes direct their staff to develop a single directed CoA. A directed CoA negates the need for staffs to conduct CoA analysis on multiple CoAs and removes the requirement to conduct CoA comparison (Figure 1, Option 3). As compared to the doctrinal full MDMP, a directed CoA is one of the most effective ways to reduce the amount of time required for MDMP. However, it incurs risk by analyzing only one option. Developing a directed CoA risks constraining leaders' situational understanding and ability to adapt to unanticipated situations.

A CoA describes one understanding and visualization for how an operation might unfold based on a set of planning assumptions. Using an analogy of a traveler, a CoA represents one path for how a unit might travel from its current state to the desired endstate.<sup>5</sup> So, what happens when the unit has considered only one path, the planning assumptions prove to be incorrect and the operation does not go as planned? Having analyzed only one CoA, leaders must then change course in real-time without having explored different planning factors or alternative paths.

Developing multiple CoAs forces commanders and staffs to consider options, such as different task-organizations, priorities of support, avenues of approach, sequences of actions and ways to synchronize units. The completed operations order will necessarily prescribe one way of accomplishing

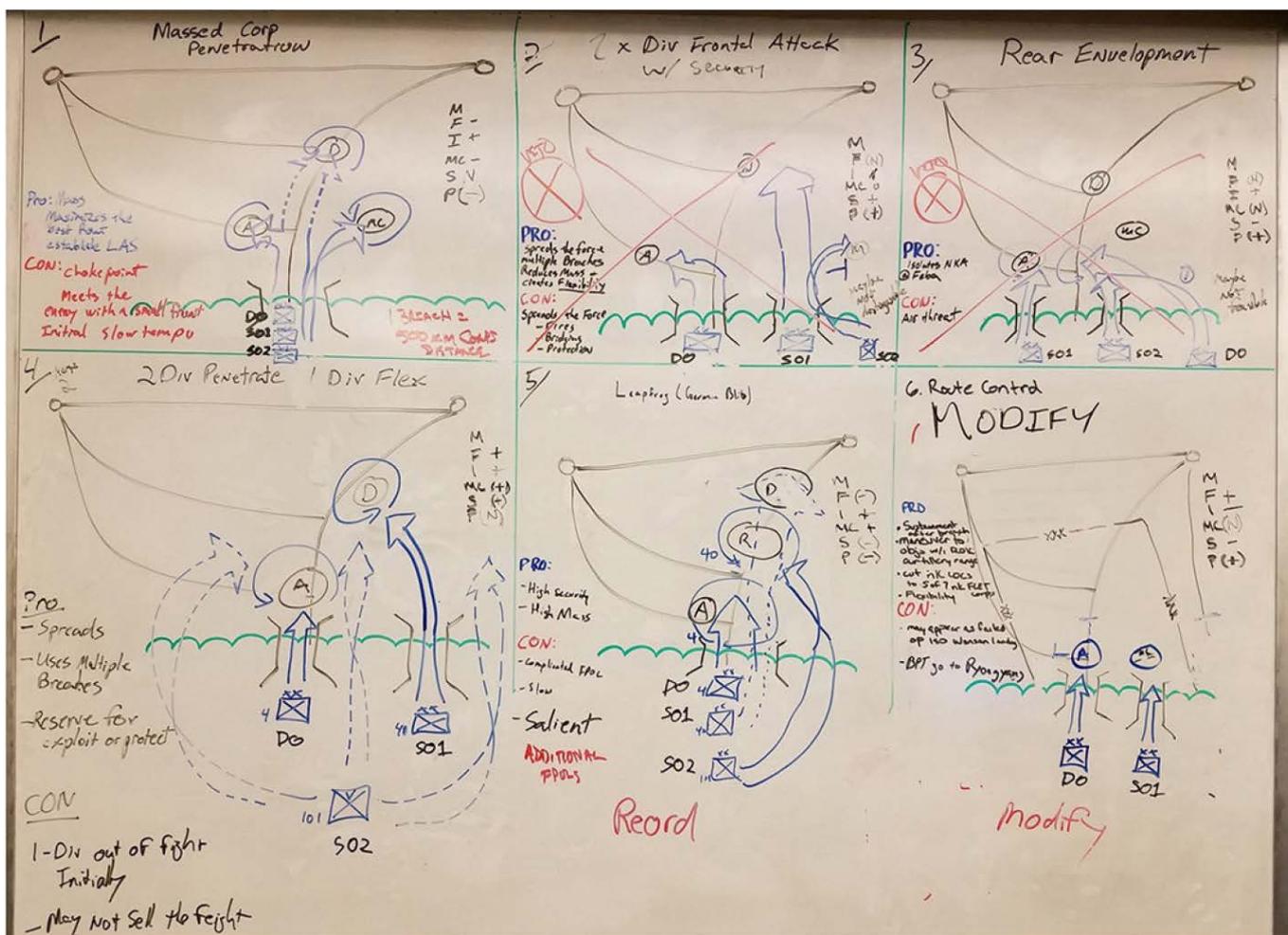


Figure 2. Rough-cut CoAs. These are whiteboard sketches of rough-cut CoAs created at the School of Advanced Military Studies (SAMS) in Spring 2018. They are noticeably unpolished, but they represent a valuable tool that enables the commander's involvement, guidance and dialogue with the staff. For a more polished example, see Figure 3.

the mission, but the other options considered during planning provide leaders a broader understanding of the situation and potential branch plans. If leaders must restrict themselves to developing one CoA, they can wargame critical events and areas of perceived risk to increase situational understanding and consider more options.

## Selection before analysis (Option 1)

Another way to modify MDMP is for leaders to conduct CoA comparison and selection before CoA analysis (Figure 1, Option 1). This method is similar to the British army's combat-estimate planning process, also known as the "seven questions." This planning process allows staffs to develop multiple CoAs but compares and selects one of them prior to CoA analysis.<sup>6</sup>

Conducting CoA comparison and selection prior to the CoA analysis reduces the amount of time required to conduct MDMP by requiring the staff to conduct CoA analysis on only one CoA. To save more time, staffs may elect to withhold developing all requisite control measures – a step required to complete the CoA – until after CoA analysis.

The risk inherent in this option is that the commander and staff discard a CoA before they are able to fully analyze it and compare the relative advantages and disadvantages of each CoA in depth.

## Rough-cut CoAs (Option 2)

Another option is for leaders to modify

MDMP by developing "rough-cut" CoAs, following mission analysis to enable a directed CoA (Figure 1, Option 2). This method borrows from the U.S. Marine Corps' planning process, which provides an option for the staff to present a rough-cut CoA brief to the commander as an informal review early in the CoA development process.<sup>7</sup> During a rough-cut CoA brief, the staff compares conceptual CoAs to enable the commander to select a single CoA early in the planning process.

Presenting rough-cut CoAs to the commander after mission analysis enables a good compromise between the amount of time required and the number of options created during planning. Rough-cut CoAs require the staff to develop and compare multiple CoAs – which is an advantage – but it does so conceptually, thereby saving time as compared to completing CoA development on multiple CoAs. This prevents the staff from spending time completing and refining CoAs that the commander would not have selected.

## Intro to rough-cut CoAs

Most leaders are unfamiliar with "rough-cut CoAs," so the next two paragraphs and the accompanying figures explain the concept using U.S. Marine Corps doctrine and the author's personal experience. Marine Corps doctrine does not deliberately define a rough-cut CoA, but based on the context of this term's use, a rough-cut CoA is an initial, unrefined or conceptual CoA. Presenting rough-cut CoAs enables the commander's involvement in the planning process and generates dialogue and guidance

before the staff invests more time refining the CoA(s).<sup>8</sup>

Figures 2 and 3 are examples of rough-cut CoAs with a schematic representation of the terrain, templated enemy disposition, friendly units, axes of advance and tactical tasks.<sup>9</sup> These rough-cut CoAs included inputs from all warfighting functions to ensure they met four out of the five screening criteria (i.e., feasible, acceptable, suitable and distinct). These four criteria ensure the CoAs can:

- Accomplish the mission with the resources available;
- Balance risk vs. reward adequately;
- Accomplish the mission within the commander's intent; and
- Are unique from other CoAs.<sup>10</sup>

The amount of detail contained in a rough-cut CoA can vary, but Figures 2 and 3 lack enough control measures and do not have the details necessary to synchronize all warfighting functions. The staff completed those details later, after the commander selected one or more rough-cut CoA(s) for further development.

## Conclusion

Leaders must balance the natural tension between creating the perfect operations order and the amount of time available for planning. This article presented three options for balancing these two demands and then qualitatively compared these options against two variables: the relative time required to complete MDMP and how many options (conceptual or complete) each option generated.

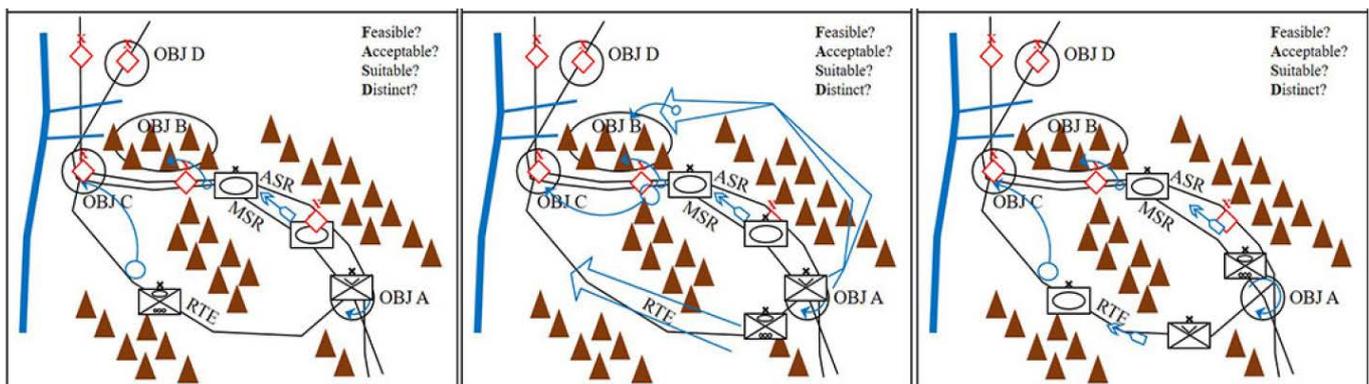


Figure 3. Schematic rough-cut CoAs. These schematics are adapted from rough-cut CoAs developed during a 1<sup>st</sup> Armored Division command-post exercise in Summer 2018. Left side: CoA 1: two up, one back, one in reserve. Center: CoA 2: one up, two back, battalion air assault. Right: CoA 3: two up, two back.

Full MDMP (Option 1) enables the greatest understanding and the largest number of options, but it requires the most time to complete. Options 2, 3 and 4 save more time respectively, but they do so at the increasing expense of a broader understanding and potential adaptability. Rough-cut CoAs (Option 3) balance the advantages and disadvantages of these methods and provide an outstanding tool to enable the commander's involvement in the planning process and CoA development guidance.

The three MDMP options described in this article rearranged the seven steps of MDMP to direct or enable selecting a CoA earlier in the planning process to minimize the amount of time developing and analyzing CoAs. It is important that leaders learn and understand MDMP doctrine. However, given the time-constrained environment leaders face on a daily basis, it may be even more important that leaders are able to deliberately modify these steps to account for the planning time available. Leaders must recognize how to direct their teams to develop a plan that is good enough for the demands of their unique situation.

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## Notes

<sup>1</sup> Department of the Army, FM 6-0, **Commander and Staff Organization and Operations**, Washington, DC: Government Printing Office, 2014.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Huba Wass de Czege, "Thinking and Acting Like an Early Explorer: Operational Art Is Not a Level of War," **Small Wars Journal**, March 14, 2011, <http://smallwarsjournal.com/jrnl/art/operational-art-is-not-a-level-of-war>.

<sup>6</sup> Directorate of Land Warfare, **The Staff Officer's Handbook**, Electronic Version, Warminster, UK: Land Warfare Centre, 2014.

<sup>7</sup> Headquarters U.S. Marine Corps, Marine Corps Warfare Publication 5-10, **Marine Corps Planning Process**, Washington, DC: Government Printing Office, 2016.

<sup>8</sup> Ibid.

<sup>9</sup> MAJ Gary M. Klein documented these examples of "rough-cut" CoAs as a student in SAMS' Advanced Military Studies Program during academic year 2017-18 (Figure 2) and as a G-5 plans officer in 1<sup>st</sup> Armored Division during Command Post Exercise 3 in Summer 2018 (Figure 3). Dr. Bruce E. Stanley and the SAMS faculty shared this planning technique.

<sup>10</sup> Department of the Army, FM 6-0.

## ACRONYM QUICK-SCAN

**CoA** – course of action  
**FM** – field manual  
**MCCC** – Maneuver Captain's Career Course  
**MDMP** – military decision-making process  
**SAMS** – School of Advanced Military Studies

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# On the Employment of Cavalry

by MAJ Amos C. Fox

COL Matthew Morton's fantastic treatise, *Men on Iron Ponies: The Death and Rebirth of the Modern U.S. Cavalry*, provides an instructive lesson on the evolution of the U.S. Army's cavalry over time. Morton argues that with the advent of the Armored Force in the 1930s and early 1940s, the U.S. Cavalry experienced a fundamental shift in its purpose, function and structure. Prior to the existence of the Armored Force, the U.S. Cavalry (like the cavalry of other armies) focused not only on reconnaissance and security (R&S) operations, but it was also responsible for rapid frontal and flank attacks, envelopments and rapid pursuits to scythe down a fleeing enemy.<sup>1</sup> The U.S. Army's adoption of an Armored Force resulted in the cavalry's

begrudging divestiture of the preponderance of its historic and traditional mission – attacks, envelopments and pursuit – to settle on R&S activities.

More poignantly, Morton states that the existence of the nascent Armored Force resulted in the U.S. Cavalry branch losing control of its destiny.<sup>2</sup>

From World War II to the Pentagon's "Transformation" period in the wake of the Sept. 11, 2001 attacks, the cavalry largely maintained its pedigree as a combined-arms force built to fight for information. Along the way, the cavalry experienced minor adjustments, including the addition of rotary-wing aviation capabilities, but by and large the cavalry experienced routine incremental change that reflected the technological and tactical evolutions of the period.

## Post-9/11 warfighting concepts

However, the U.S. Cavalry came under assault from the warfighting concepts of the post-9/11 environment. In essence, post-9/11 Information Age technology promised to put sensors and unmanned surveillance assets on the battlefield and more or less obviate the Army and joint force's need for ground-cavalry formations.<sup>3</sup> To be sure, the now-debunked "revolution in military affairs" and "shock and awe" concepts of the post-9/11 era advanced this argument to the point of making it official policy.<sup>4</sup> The effect was deleterious for the cavalry. Perhaps the most insidious and noticeable result of this hostile takeover was the deletion of armored-cavalry regiments (ACRs) and division-cavalry

squadrons from the U.S. Army's bench of capabilities and replacement of that formation with a variety of unproven concepts, sensors, systems and units.

Furthermore, as part of the Pentagon's transformation effort, the Army began shifting from specialization in pursuit of modularity. In doing so, it transitioned leadership in the U.S. Cavalry from armor officers to a situation in which either infantry or armor officers could lead and staff cavalry formations. The effect was that officers with little to no experience or formal education in cavalry operations were now leading those formations. In turn, this had a pernicious impact on the U.S. Cavalry because the organizations led by those officers were often improperly trained and employed, while Soldiers within those formations were improperly developed.

The impact of this ripples across the force today. It illuminates itself in combat-training center (CTC) rotations, command-post exercises (CPX), warfighter exercises, field-training exercises and deployments. In most cases, this manifests in one of two ways. First, at high echelons of command, leaders fail to identify the need for a dedicated formation to fulfill the purpose and function of R&S operations. For instance, in many division-level CPXs and warfighter exercises, divisions parry the need for a dedicated cavalry formation and instead push those requirements to one of its brigade combat teams, thereby forcing that brigade to answer the division commander's critical-information requirements while also fighting its assigned mission.<sup>5</sup>

Second, commanders and staffs use their assigned cavalry as another combined-arms or infantry battalion. In doing so they mismanage their available forces, which in the case of mismanaged cavalry, equates to fighting with a blindfold strapped around one's eyes. All that is to say that in effect, the Pentagon's transformation effort of the post-9/11 period, fueled by a technocratic mindset on war and land warfare, all but neutered the U.S. Cavalry.

Yet for the U.S. Cavalry there is light at the end of the tunnel. Considering the



**Figure 1. An M24 Chaffee light tank belonging to 106<sup>th</sup> Cavalry Group moves on the outskirts of Salzburg, Austria, in May 1945. The M24 was a Johnny-come-lately to the war effort, but armored-division crews reported liking the Chaffee's improved off-road performance and reliability. However, they were most appreciative of the 75mm main gun, which was a vast improvement over the M5A1 Stuart tank's 37mm gun. In spite of the gun's upgrade, cavalry was still unable to perform its historic and traditional mission in Europe and the following conflict, Korea.**

resurgence of land warfare, spurred by Russia's 2014 invasion of Ukraine and the ensuing five years of continued tank- and artillery-laden combat in Ukraine's Donbass region, the need for rugged ground-based cavalry is on the upswing. To be sure, Morton argues that "[a]t the squadron level and below, little has changed since World War II with respect to finding the enemy."<sup>6</sup>

## **Pondering cavalry's role**

In light of that fact, and as the U.S. Army looks again to large-scale combat operations (LSCO) as a potential answer in the new era of Great Power competition, it is necessary to ponder the cavalry's role. Balancing a historical perspective while maintaining a watchful eye on current and future armed conflict, a number of ideas or principles on the employment of cavalry come to the fore.

The principles listed following are not intended to parrot doctrine, but instead, they are a handful of foundational truths on the employment of cavalry. Furthermore, it is important to note that in many instances within

this article, non-doctrinal words and phrases are used to help define and explain these principles. This is done intentionally because the use of doctrine often carries impedimenta to new ideas and therefore obstructs open-mindedness. It is hence of utmost importance that the reader approaches the following principles dispassionately and not in a polemic manner to rebuff the suppositions for not aping doctrine.

This is important because, for all its virtue, doctrine merely describes how one wants to think and fight, and not necessarily how one should think and will have to fight. The student of war understands that the praxis of war, governed by the interaction between two or more unique belligerents, drives the conduct of war more than doctrine. Therefore, one must be mentally and physically prepared to fight in a variety of ways not necessarily captured in doctrine.

With the groundwork laid, it is time to examine a set of principles that should govern how to think about cavalry.

**Principle 1: Cavalry allows a commander to manipulate time in battle.**

It is instructive to note that many military theorists make the case that time, above all else, is the most important element of war. American military theorist Robert Leonhard suggests that the inability to effectively manipulate time is what most plagues military commanders.<sup>7</sup> Continuing that line of logic, Leonhard contends that “[m]ilitary conflict – whether in wars, campaigns or battles – seeks to summon that failure (or delay it) and is, therefore, when reduced to its fundamentals, a contest for time.”<sup>8</sup> Meanwhile, British theorist J.F.C. Fuller offers that “[s]uperiority of time is so important a factor in war that it frequently becomes the governing condition.”<sup>9</sup> But perhaps no one captures time’s salience more clearly than French general and statesman Napoleon Bonaparte. Bonaparte posits that “I might lose a battle, but I will never lose a minute.”<sup>10</sup>

Yet, conversely, time is often overlooked, mismanaged and squandered in many tactical formations. For instance, units often fritter away time working through the military decision-making process (MDMP), which often becomes ponderous and unwieldy, and thus devours available time. In turn, this mismanaged time causes the formation to not get its cavalry force into the fight with enough time to positively influence and shape the environment.

Further, a common trope among commanders today is that virtue exists in waiting to the last possible moment to make a decision. However, this is illogical, especially when viewed in light of the importance the U.S. Army places on shaping the environment and on seizing initiative. To accomplish these goals, commanders must proactively make decisions and, in land warfare, timely decisions are enabled through felicitous employment of one’s cavalry force. Thereby, it follows that for a commander to dictate the provisions of time on an opponent, the commander must proactively make decisions, and that decision-making process is driven by carefully considered and expeditiously employed cavalry.

On the other side of the coin, punting decisions down the road, allowing MDMP to monopolize available time,

and not thinking clearly about current and future decisions often results in squandering cavalry forces. Ineffective employment often renders the cavalry belatedly deployed, which in turn drives an unforeseen set of decisions to emerge for which the command is ill-prepared.

**Principle 2: Cavalry shapes the environment and the situation of its supported force.** Building on the previous point, British military theorist B.H. Liddell Hart, in his seminal treatise, “The Essence of War,” argues that the apogee of land warfare is to attack along the line of least probable expectation, and to do so, one must follow the line of least resistance.<sup>11</sup> American cavalryman GEN George S. Patton Jr. makes a similar argument, suggesting that one “[n]ever attack where the enemy expects you to come. It is better to go over difficult ground where you are not expected than it is over good ground where you are expected.”<sup>12</sup>

If one gives credence to Liddell Hart’s and Patton’s theories, he or she will find that cavalry is decidedly important in enabling this activity. On that account, the cavalry is the pre-eminent shaping force in land warfare because, if it correctly executes its mission, it allows its supported force – whether that be tanks, infantry or a combination thereof – to attack along the line of least probable expectation by finding the line of least resistance.

## Shields and swords

Fuller offers a penetrating framework to support Liddell Hart’s and Patton’s theses. Fuller suggests that the battlefield consists of entities possessing “shields” and “swords,” or forces that enable and forces that attack.<sup>13</sup> Fuller’s shields do what they must to allow the possessor to position its sword to thrust at the enemy. Nevertheless, the “shield” protects the possessor and its sword, because without protection, the possessor and sword are prone to destruction. Accordingly, the cavalry, or Fuller’s “shield,” shapes the environment for its supported force in a number of ways, as it:

- Softens the target through indirect and direct fires;
- Deceives the enemy as to the whereabouts of the supported force;

- Misleads the enemy on the support forces’ intended direction of advance;
- Facilitates the supported force’s positioning, movement and maneuver on the battlefield;
- Deceives the enemy about what lies to its front and causing it to transition, or change its plan, ahead of schedule; and
- Augments the defense, both deliberate and hasty, providing an additional layer of protection, early warning and stand-off for the support force.

A commander must therefore thoughtfully employ his/her cavalry to proactively shape the environment for the supported force to allow it to operate along the line of least probable expectation and to follow. He/she must do so while meticulously accounting for the indomitable force of time during his/her planning effort.

**Principle 3: Cavalry is a commander’s tool and he/she must not be deprived of it.** Cavalryman and pre-eminent American tanker GEN Creighton Abrams was noted for his uncanny ability to proactively sense the timing and pace of battle while possessing the acuity to advantageously use terrain during his command of 4<sup>th</sup> Armored Division’s 37<sup>th</sup> Tank Battalion, and later Combat Command B, during World War II.<sup>14</sup> Abrams’ tactical acumen and battlefield success can be tied to training and education in the U.S. Cavalry, which allowed him to think and fight like an old horse cavalryman while employing his own reconnaissance assets during the war.<sup>15</sup> Nonetheless, commanders should seek to emulate Abrams’ ability to sense the timing and pace of battle, and the terrain’s power and influence on the tactical action. A commander’s cavalry is the tool that allows him/her to do so.

In a commander’s hand, cavalry forces enable him/her to improve understanding on the current situation, develop the picture for future tactical activities and shape the future. Therefore, it is paramount that commanders retain control of their respective cavalry formations. All too often today, senior commanders confiscate the

cavalry formations of their subordinate commanders to augment their own cavalry force. For example, when brigade commanders strip the scout platoons from their combined-arms or infantry battalions to reinforce their cavalry squadron, it neutralizes a battalion commander's ability to proactively shape and gain an understanding on his/her respective area of operation. Or, as frequently happens in digital division-level exercises, the division headquarters robs a brigade combat team of its cavalry squadron, thus leaving the brigade commander

blind and understrength.

To make headway on this verity – that in land warfare, cavalry is the commander's tool for proactively shaping the environment – senior commanders must not take the cavalry force of their subordinate commander(s). Doing so undermines the subordinate commander's tactical success, thereby increasing, not decreasing, the problems for the senior commander.

Further, in light of the attention placed on LSCO, commanders at all levels of command, from the battalion to the

field army, need a degree of organic cavalry. As the Army looks at modernization efforts that seek to address the challenges of Great Power competition and LSCO, it should invest in sinew ground-cavalry formations so that field commanders are better able to succeed on the battlefield.

**Principle 4: Cavalry operations build the framework for the employment of a commander's reserve.** The commitment of one's reserve should not be an off-the-cuff, reactionary endeavor. If done properly, the commitment

# LEGENDS OF ARMOR



"ABE"  
 CREIGHTON W. ABRAMS  
 COMMANDER, 37TH TANK BATTALION  
 RELIEF OF BASTOGNE  
 CLOCHIMONT HILL, BELGIUM  
 26 DECEMBER 1944  
 AWARDED THE DISTINGUISHED SERVICE CROSS  
 CHIEF OF STAFF, UNITED STATES ARMY  
 1972-1974



of a reserve should be tied to a decision point developed during thorough and detailed planning. In most situations the employment of one's reserve should be tied to one of three conditions:

- Tactical success;
- Failure to accomplish the mission or to attain an objective; or
- A previously identified transition.

Four primary transitions come to the fore when planning to employ a reserve. The transitions include 1) transition from an attack to a defense; 2) transitioning from a defense to an attack; 3) transitioning from an existing form of warfare to a pursuit; and 4) transitioning from one form of warfare to a retrograde or withdrawal.

Having identified the aforementioned conditions and transitions during the planning process, commanders should orient their cavalry force on seeking information that supports, answers and informs the decisions for each of those points. Doing so better enables commanders to appropriately employ their reserve.

**Principle 5: The use of cavalry must be purposeful and not be anchored on vacuous jargon.** If used effectively, a cavalry force enhances the mission of the headquarters it supports. If used ineffectively – hastily employed without enough thought given to its focus, objective or sustainment – cavalry forces become a burden for the command they support and thus begin to work against that command.

In the U.S. Army, the idea of “kicking out the cavalry squadron” or “kicking out the scout platoon” as early as possible has taken on near dogmatic proportions. However, the lens of history notes that this heuristic is not new. To be sure, this problem has plagued commanders for centuries. Namely, Prussian army Chief of Staff Helmuth von Moltke noted a similar problem in the Prussian army during the 19<sup>th</sup> Century's wars of German unification. He reflects, “Premature deployment [of cavalry forces] is disadvantageous because long lines are unwieldy in movement, easily miss the correct direction and come apart. They find cover difficult to obtain in open terrain and

cannot easily escape the enemy's view and fire.”<sup>16</sup>

The haste in which many commanders deploy their cavalry force in training results in the cavalry's becoming more vulnerable to counter-reconnaissance, surveillance, indirect-fire attacks and destruction. This in large part is why one often sees cavalry formations die a quick death during CTC rotations and in digital training exercises.

## Hasty vs. timely employment

While in training this can be chalked up to learning, the mindset and perspective on cavalry cannot be allowed to calcify. To be sure, as the Army re-invests in LSCO, commanders must realize that if a cavalry force is quickly destroyed, it will not be rapidly reconstituted or regenerated like it is at the National Training Center or during a CPX. Instead, a commander must purposefully employ his/her cavalry formation. The cavalry-force employment must be timely and adequately resourced to boot. Otherwise, the potential cost of a hasty employment outweighs the benefit of a rapidly committed, but quickly destroyed, cavalry force.

**Principle 6: Cavalry builds the framework for exploitation.** History suggests that the preponderance of casualties in war are brought about through exploiting tactical success by pursuing a beaten enemy and driving them down as they abscond toward safety. Bonaparte echoes this verity in stating that “[t]he secret of war is to march 12 leagues, fight a battle and march 12 more in pursuit.”<sup>17</sup> Yet far too often, Army plans posit that “consolidation and reorganization” come on the end of a tactical operation. This planning paradigm suggests that the commander foresees failure or at least a zero-sum situation at the battle's conclusion. For if a commander sees success and not ruin on the far side of his/her plan, he/she would then speak of exploitation or transitions.

The cavalry plays a major role in this decision space by gathering the information necessary to enable a combined-arms or infantry battalion's pursuit of a defeated enemy. It does so by working throughout an ongoing

operation to fill the tenuous gaps between known and unknowns to provide the commander the information needed to craft a plan for pursuit.

Therefore, the supported commander must proactively task the cavalry to look for the answers to drive those transition decisions. Commanders must not wait for the conclusion of an existing operation to think about where and how to employ the cavalry. Instead, they must build upon the existing decision-support matrix by using the existing tactical situation to gain insight to opportunities, gaps and weaknesses to exploit.

**Principle 7: Cavalry leaders are forward-thinkers, problem-solvers, independent spirits and decisive operators.** Given the fluidity and temporal aspects of cavalry operations, cavalry formations require a certain type of leader. The character of cavalry operations demand that leaders of cavalry formations be forward-thinking. Cavalry leaders must always think about what is next, how their operations support higher headquarters and what should they see or find that they were not necessarily instructed to find.

## Problem-solvers

Next, cavalry leaders must be independent problem-solvers capable of operating beyond the confines of mission command. Recalling Principle 3's focus on sensing time and the pace of battle, as well as the physical and temporal effects of terrain, cavalry leaders must intuitively act in a decisive manner based on fleeting environmental factors to capitalize on the temporal, environmental and spatial factors of engagements and battle.

To be sure, cavalry leaders must not be doctrinaires but must be able to think, speak and operate beyond the narrow confines of U.S. Army doctrine. Army doctrine, focused solely on how the U.S. Army seeks to fight as part of the joint force, is a cognitive box that narrowly directs how to operate at the tactical level, thereby also limiting the number of mental models available for leaders to effectively make sense of what's unfolding before them. However, the problems faced at the tip of the spear rarely fall into the simplistic, maneuver-centric tactical concepts cap-



Figure 2. Ukrainian troops during the Battle of Debaltseve, Feb. 5, 2015.

tured in U.S. Army doctrine.

For example, Russian operations in eastern Ukraine highlight this point. The Battle of Zelenopillya – more a slaughter than a battle – presented a tactical situation in which Russian reconnaissance and its nascent reconnaissance-strike model rapidly overwhelmed several Ukrainian combat brigades, resulting in hundreds of casualties and the destruction of three Ukrainian armored brigades.<sup>18</sup>

The battles for Luhansk airport, Donetsk airport and Debal'tseve were all positional battles of attrition, or sieges, in which the Russians, taking advantage of the Ukrainians' willingness to seize the initiative, lured them into terrain that put them at a severe tactical disadvantage.<sup>19</sup> In each case, Russia bludgeoned the Ukrainian forces and won tactical victories that rippled at strategic and policy levels.

Yet, U.S. Army doctrine is devoid of tactical and operational frameworks that illustrate much beyond the maneuveristic method of how it wants to fight. Because of this, cavalry leaders must be able to understand operations beyond the myopic confines of doctrine. Failure to do so can result in Debal'tseve-eque situations in which cavalry leaders guide their supported unit into a trap.

## Conclusion

Harkening back to the beginning, Morton reminds the student of war, "Then, as now, war remains a human endeavor. Until the army develops a remote sensor capable of divining intentions

and reading minds, there will be a need to close with the enemy to determine his plans."<sup>20</sup> Current events continue to reinforce this assertion. A resurgent Russia, waging a land-based campaign in eastern Ukraine – dominated by the ground combat fought by tanks, infantry and artillery – demands that U.S. Army land forces understand how to effectively employ cavalry forces. Further, this dynamic demands that the U.S. Army re-examine the need for cavalry forces at the division, corps and field-army level.

U.S. Army Europe's upcoming Defender 2020 exercise might help bring the need for ground-cavalry forces at the division, corps and field army to the fore.<sup>21</sup> The Defender 2020 exercise is also likely to highlight the need for forward-deployed ground-cavalry forces in middle and eastern Europe. To be sure, Defender 2020 and smaller rapid-force-deployment exercises, such as the deployment of a task force from 2<sup>nd</sup> Armored Brigade Combat Team, 1<sup>st</sup> Armored Division, in April to May 2019 to Drawsko Pomorski, Poland, do not take place in a contested environment in which movement into the theater via air and sea are denied or obstructed.<sup>22</sup> An aggressive adversary patrolling the waters of the Atlantic, and the sky above it, could prove problematic if the need arose to expeditiously invest Europe with U.S. Army forces.

Moreover, cavalry's bright future demands a clear understanding of its employment. The U.S. Army must also shake free of the faulty Information Age concepts that denuded the U.S.

Cavalry in the early days of the post-9/11 period. Some of these concepts include the idea that rugged ground cavalry is no longer needed and that sensors and surveillance equipment can do the job cavalry once did. Further, the idea that any combat-arms leader was suitable to develop, coordinate and lead cavalry formations has proven false.

Inquisitive students of war find that a basic set of principles permeate cavalry operations if they challenge themselves to look beyond the confines of U.S. Army doctrine.

- **Principle 1:** Cavalry allows a commander to manipulate time in battle.
- **Principle 2:** Cavalry shapes the environment and the situation of its supported force.
- **Principle 3:** Cavalry is a commander's tool, and he or she must not be deprived of it.
- **Principle 4:** Cavalry operations build the framework for the employment of a commander's reserve.
- **Principle 5:** The use of cavalry must be purposeful and not be anchored on vacuous jargon.
- **Principle 6:** Cavalry builds the framework for exploitation.
- **Principle 7:** Cavalry leaders are forward-thinkers, problem-solvers, independent spirits and decisive operators.

These principles are not meant to be a checklist but rather a guide to help Soldiers assigned to cavalry formations better understand the purpose and function of the formation to which they are assigned. For as Fuller reminds the Soldier, "We must liberate our thoughts from customs, traditions and shibboleths, and learn to think freely, not imitatively. When anything appeals to us or displeases us, we must not accept it on its face value, but examine it, criticize it, and discover its meaning and inner worth. Remember that every student has much more to unlearn than to learn, and that he cannot learn freely until he has hoed the weeds of irrational thought out of his head."<sup>23</sup>

These principles are focused on generating thought and debate among

U.S. Army Cavalry practitioners – akin to that which marked the coda of the U.S. Army’s horse cavalry, the birth of the U.S. Armored Force and the complementary rise of mechanized cavalry – in hope of improving the cavalry force and its leaders, and making it more effective on the battlefield.

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*honorary rolls; and the Order of St. George (Bronze). He is also a recipient of Silver Spurs.*

## Notes

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<sup>21</sup> Jen Judson, “Reforger Redux? Defender 2020 to be the 3<sup>rd</sup> Largest Exercise in Europe Since Cold War,” *Defense News*, Oct. 7, 2019, <https://www.defensenews.com/land/2019/10/07/reforger-redux-defender-2020-exercise-to-be-3rd-largest-exercise-in-europe-since-cold-war/>; accessed Oct. 27, 2019.

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<sup>23</sup> Fuller.

## ACRONYM QUICK-SCAN

ACR – armored cavalry regiment  
CPX – command-post exercise  
CTC – combat-training center  
LSCO – large-scale combat operations  
MDMP – military decision-making process  
R&S – reconnaissance and security

Reprinted from Winter 2020 *ARMOR*

# On the Employment of Armor

by MAJ Amos C. Fox

The May-June 1998 issue of *ARMOR* ran an article entitled “The Principles of the Employment of Armor.” The article initially supported institutional education post-World War II as it was included in Special Text No. 28 at Fort Knox, KY. The article provides a salient framework by which to understand armor’s purpose and utility on the battlefield.<sup>1</sup> However, very few articles since “The Principles of the Employment of Armor” have captured the essence of armor, especially given the evolution in war between its publication and today.

Real-world considerations necessitate a fresh look at the employment of armor. To be sure, the re-emergence of conventional land warfare in the Caucasus region of Eurasia and Eastern Europe in the preceding decade has raised the need for re-examining the

principles and ethos on which armor is employed.

Tanks played a central role in the Russo-Georgian War of 2008, while mechanized warfare dominated the initial battles of the Russo-Ukrainian War (2014-present). Stepping away from Eurasia, armor continues to factor into the long-burning conflagrations in the Middle East. Most notable, the Iraqi Army’s 9<sup>th</sup> Armored Division was a foremost figure in the defeat of the Islamic State of Iraq and Syria (ISIS) during Operation Inherent Resolve. The 9<sup>th</sup> Iraqi Armored Division, along with the Iraqi Security Forces’ Counter-Terrorist Service, did yeoman’s work during the battle for Ramadi (2014) and the siege of Mosul (2016-2017). Furthermore, and much to the chagrin of the U.S. Army and the U.S.-led coalition to defeat ISIS, Iraq’s 9<sup>th</sup> Armored Division spearheaded the short-lived campaign to quell the Iraqi Kurd independence

movement in October 2017.<sup>2</sup>

To a lesser degree, armor has played a continuous role in Syria. Russian proxies and private military companies continue to employ armor to assist Syrian president Bashar al-Assad in his incremental reappropriation of territory from rebels and ISIS in Syria. This use of armor, veiled for a good portion of the Syrian civil war and counter-ISIS fight, came to the forefront in February 2018 when U.S. forces struck the Russian proxy, the Wagner Group, killing hundreds of Russians in the process. The strike, a defensive measure taken by U.S. forces to protect a special-operations outpost in the Syrian desert, destroyed multiple Russian tanks, laying bare the fact that armor is not isolated to the undulating terrain of Eastern Europe.<sup>3</sup>

As a result of life being breathed back into armored warfare, the U.S. Army

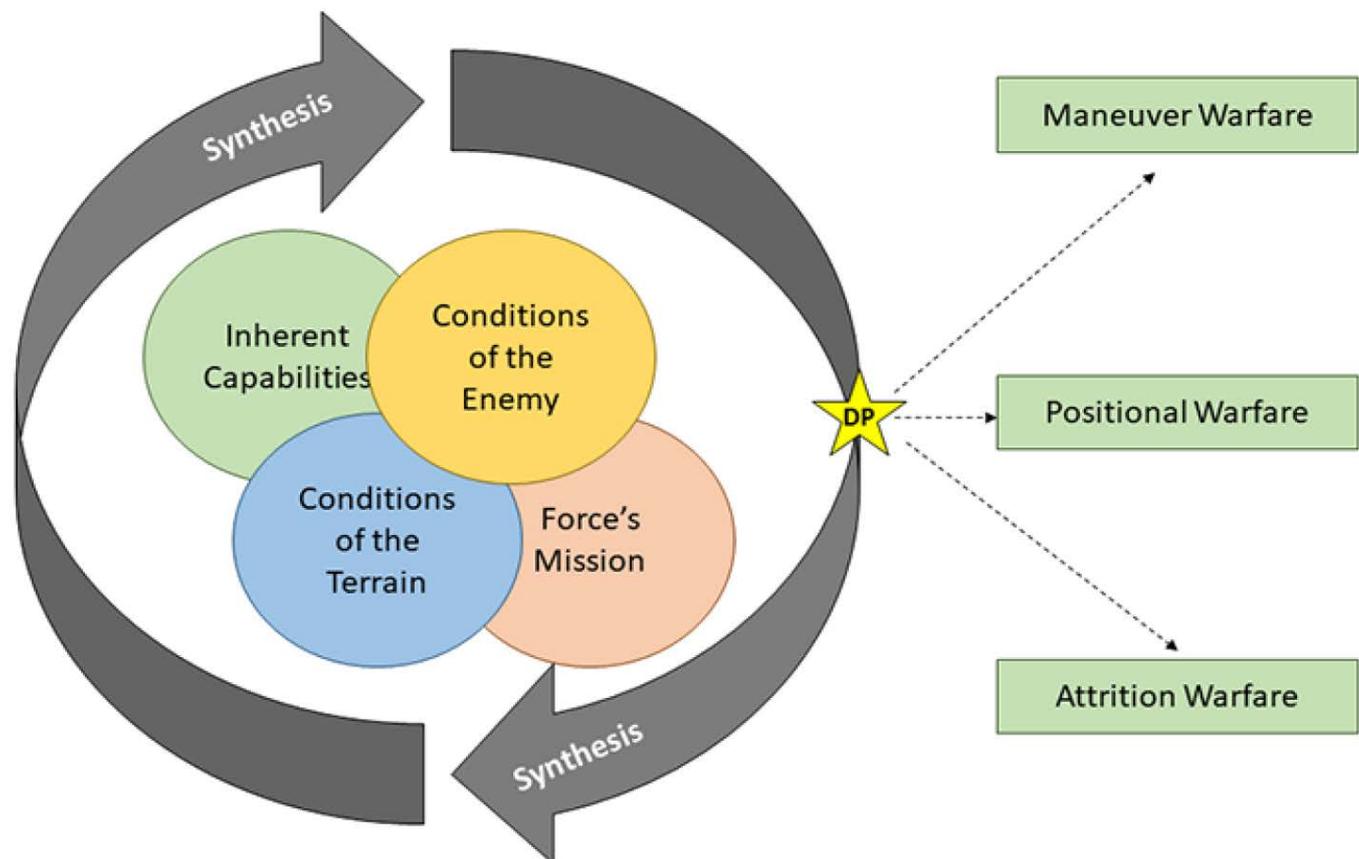


Figure 1. Selection process for the forms of warfare. (Graphic by MAJ Amos C. Fox)

recently decided to increase the number of armored brigade combat teams (ABCTs) by one, raising the number of ABCTs in the Active Component from 11 to 12.<sup>4</sup> Further, this transition will increase the number of combined-arms battalions, the contemporary heart of the U.S. Army's armored force, by three and will result in one cavalry squadron shifting from lightly armored Stryker reconnaissance-and-security (R&S) formations to armored-cavalry squadrons. While this transition is not expected to be complete until the end of 2020, the need to educate and train armored leaders is critical to this effort.

This article, similar to "The Principles of the Employment of Armor," also provides a set of principles that should govern the employment of armor on the modern battlefield. However, this article is not a facsimile of "Principles." Instead, the values listed here are a modern interpretation of the needs and uses for armor on the battlefield. Moreover, and similar to the original "Principles of the Employment of Armor," this work reminds the reader that the principles listed herein are a mental model, a tool for thinking about employing armor; it is not a "one-size fits all" dictum. To that end, it must be noted that skill, judgment and the situation's conditions play an equally important role in the employment of armor, as does any doctrine, set of principles or theories.

With the scene now set, it is time to review a modern set of thoughts on the employment of armor.

## Principle 1

**Armored warfare is mobile warfare,**

**not maneuver warfare.** Armored warfare, like any other martial variant, is conditional. The conditions, dominated by the physical environment and one's adversary, do more to dictate the manner in which a force fights than does one's doctrine or institutional preference for warfighting. The resultant effect is that armor must be adept at **thinking** and **fighting** mobile wars of maneuver, positional wars that manipulate the physical environment and an opponent's cognitive bias, as well as bludgeoning wars of attrition.<sup>5</sup> In all instances, mobility is the substance that lubricates the engine of battle. (Figure 1).

The U.S. Army maintains an arsenal of guns, cannons and anti-tank weapons that outrange the tank. Also, a throng of vehicles exist within the Army's strategic motorpool that provide protection. However, mobility – tactical and operational – is armor's distinctive feature. This feature is brought about by the nexus of firepower, protection and crew mobility. Armor leaders must never forget that the ability to move rapidly – whether from intervisibility line to intervisibility line, or from one operational objective to the next – is where armor's true battlefield value lies. As a result, armor leaders must think in terms of mapsheets and not grid squares. Mobility isn't reserved for offensive action but also provides a distinct advantage in the defense as well. Mobility in the defense provides armor leaders flexibility and options while providing the opportunity to counterpunch. Further, armor leaders must understand that logistics and maintenance are the lifeblood of armor's tactical and operational mobility,

and therefore they mustn't short-shrift functions. Failure to develop a logistics and maintenance mindset will undercut the ability of armor to put its distinctive feature – tactical and operational mobility – into use in combat.

Further, mobile warfare or armored warfare is not maneuver warfare. Moreover, the trope, "maneuver is maneuver," which is often overheard when one is brushing aside the polarity among armor, cavalry or infantry in battle, illustrates a significant depravity in understanding land warfare. Armor embodies mobile warfare, which is significantly different from cavalry operations or infantry-centric land warfare. Armor's protection, mobility and firepower allow it to move faster, farther and with more gusto and panache than its lightly armed, foot-powered counterparts in the infantry. Armor's purpose – employment of mobility to penetrate, exploit and pursue – make it distinctly ill-suited for purpose of the cavalry and vice versa. Armor leaders must appreciate the nuance that resides among the combat arms and be able to factor that into their understanding of how each arm thinks and fights.

## Principle 2

**Armor dictates the tempo of engagements and battles.** By virtue of its tactical and operational mobility, armor dictates tactical tempo. Tempo and speed go hand in hand and complement one another; however, it is important to note that tempo and speed are not the same thing. Tempo is the frequency and amount of activity in a battle or campaign.<sup>6</sup> Tempo is measured in degrees between high

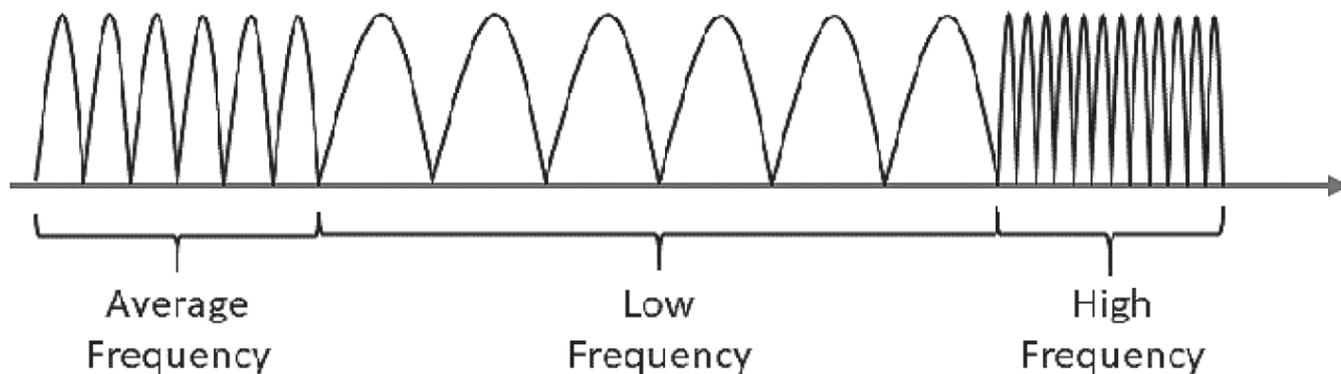


Figure 2. Tempo in battles and campaigns is the frequency and amount of activity in battles and campaigns. (Graphic by MAJ Amos C. Fox)

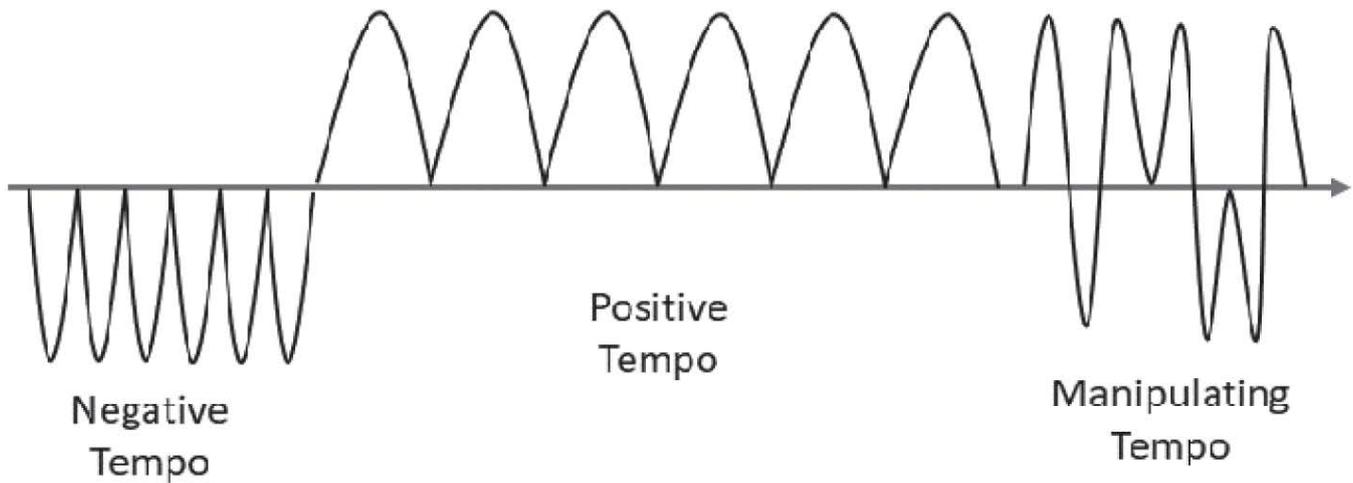


Figure 3. Positive and negative tempo. (Graphic by MAJ Amos C. Fox)

frequency and low frequency (Figure 2). The ability to manipulate the frequency and amount of activity in battle and campaigns is generally a result of sufficient or excess resources and not moving faster than one's opponent.

Furthermore, manipulating tempo in battle is intentional and is commonly the result of adding to existing offensive action or deliberately using defensive, positional, or attrition tactics to slow down one's opponent. At the same time, tempo can be positive or negative. Positive tempo is increasing the frequency of activity, while negative tempo is decreasing the frequency of activity (Figure 3).

Speed, on the other hand, is scalar and binary. Speed is the resultant effect of the amount of time it takes to cover a specific distance. Speed can be useful in manipulating tempo, but speed is not synonymous with tempo. Speed is usually measured in terms such as fast and slow.

The purpose of commanding tempo and manipulating the speed of battle is to keep an opponent on its back foot and reactive. The goal of keeping an opponent off balance is to economize effort and the expenditure of resources in pursuit of one's respective objective.

To command tempo in battle and

campaigns, armor leaders must engage in timely and thorough planning, engaged and decisive leadership, and the positive use of reconnaissance. MG Ernie Harmon wrote an excellent report following World War II's North African Campaign that highlights this point. Harmon states that "[s]peed can be made by rapid decisions, by going from one reconnoitered place to another, by thinking ahead and being prepared with the solution for emergency when it arises, and, above all, by forethought as to how to handle the contingencies of battle when they come up. ... The mark of a well-trained and superior outfit is the deliberate and assured way it goes into battle, checking every

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$



Figure 4. Speed in warfare. (Graphic by MAJ Amos C. Fox)

detail, seeing that everything is set, making provisions for what will probably happen in the immediate future.”<sup>7</sup>

While the conditions have changed, armor’s ability change the tempo of battle – either increasing or decreasing the frequency and speed of action – remains as germane today as it did in the deserts of North African in 1942. In either case, the armor leader’s role in commanding the rhythm of battle is indispensable.

### Principle 3

**Armor leaders are decisive and involved.** The very character of mobile warfare – the ability to devour prodigious swaths of land while bringing combined arms to bear in battle – mandates involved and decisive leadership. To be sure, mobile warfare’s celerity and harmonization of arms requires engaged leadership from the

outset of the planning process. Unwelcome and unneeded are leaders that provide poor guidance, only show for briefs, act as though the plan is that of the staff and not their own, and refuse to make substantive decisions. Leader involvement is pivotal in the planning and operations process because it creates the environment in which formations can move beyond reactive action and instead dictate the sequence and tempo of battle and operations.

To do so, armor leaders must sense the *pace* and *timing* of battle and the ability to feel the *influence of terrain* on tactical action. Involved and decisive leaders then brandish these intangible conditions to empower their formation, and those within their sphere of influence, to “see the other side of the hill,” thus moving into a proactive posture. Many theorists, from Carl von Clausewitz to B.H. Liddell Hart, refer to

these qualities as *fingerspitzengefühl* or *coup d’œil*, and argue that they are the result of genius. While innate mental skill likely plays a role in *fingerspitzengefühl* and *coup d’œil*, what is more important is a leader who cares enough to be involved. Anemic minds and uninvolved or lazy leadership are anathema to the employment of armor. Individuals falling into those categories should be culled from the armored force at the first opportunity, as they are not the type of leader armor needs to thrive on the battlefield.

### Principle 4

**Armor penetrates, exploits and pursues.** Armor’s purpose is not to line up and smash into other armored formations. To be sure, this approach is antithetical to combined-arms operations and violates the tenets of combined-arms warfighting theory.<sup>8</sup> American

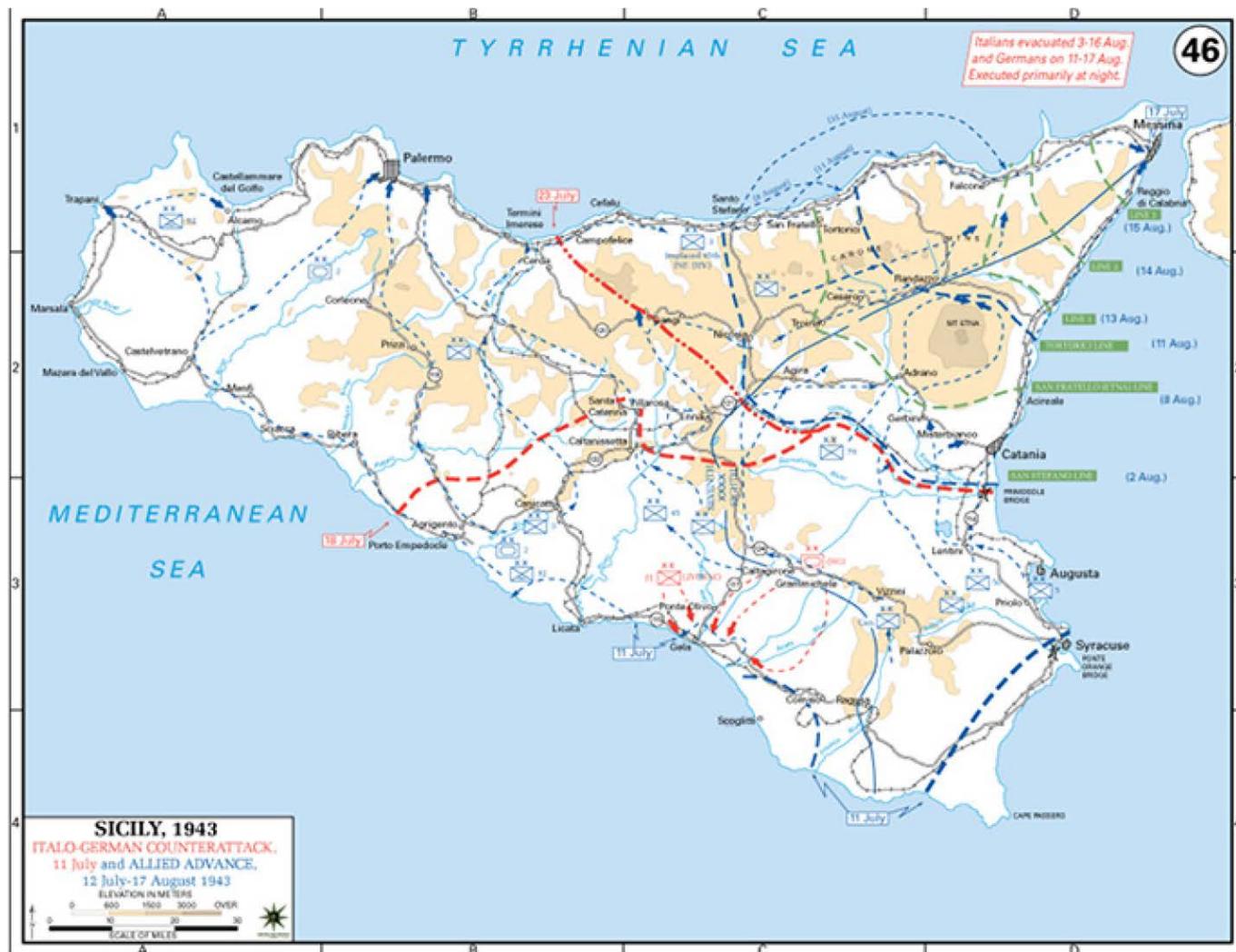


Figure 5. Battle map of the Sicilian Campaign. (Map by U.S. Military Academy Department of History)





application of the requisite technical and tactical knowledge). Both these conditions are intangible and not easily measured in quantifiable value, but instead are measured through the art of command. Commanders and staffs assess the ability of their unit's capability to effectively engage in battle through first-hand observation while putting their unit through its paces in tough, realistic training.

Further, preparing for battle means stepping beyond the confines of existing doctrine and educating one's formation on the character of war.

Contemporary warfare is dominated by three types of warfare: proxy warfare, positional warfare and attrition warfare. (**Editor's note:** Please see Fox's article, "A Solution Looking for a Problem: Illuminating Misconceptions in Maneuver-Warfare Doctrine," in *ARMOR*'s Fall 2017 edition, <http://www.benning.army.mil/Armor/eARMOR/content/issues/2017/Fall/4Fox17.pdf>.) None of these forms of warfare are addressed in U.S. Army doctrine, which is precariously focused on maneuver warfare. Nevertheless, proxy, positional and attritional environments, or a combination thereof, is where armor will find itself committed for the foreseeable future. Armor leaders must push themselves and their formations to look beyond the cozy confines of thinking and training for how the U.S. Army *wants* to fight and instead think about and train for how it *will* fight. Moreover, armor leaders should liberate themselves from metric-focused parameters for assessing warfighting capability and instead get into the field training and assess their formations.

## Principle 8

**Armor fights from the hatch.** Armored formations are built for unencumbered activity. They are not meant to be tethered, whether digitally or physically, to static command posts (CPs). The notion that armored divisions, in a convention fight against a peer competitor, will have the time to establish an elaborate array of tentage for CPs is fallacious. Further, this point becomes even more striking as one moves down the tactical ladder, from the division to the battalion- and company-level. On a mobile battlefield against peer

competitors, an array of tents does little but invite attack, create requirements that slow down armored operations and disrupt armored formations from fighting in accordance with their *raison d'être*. The battle and campaign are best served when armored formations are unleashed and allowed to wreak havoc against their adversary.

The ongoing Russo-Ukrainian war serves as an instructive example of why armored formations should not be tethered to digitally enhanced, static CPs. In the early morning hours of July 11, 2014, the Ukrainian 24<sup>th</sup> Mechanized Brigade, 72<sup>nd</sup> Mechanized Brigade and 79<sup>th</sup> Armored Brigade were laagered in an assembly area preparing to launch an offensive in the Luhansk oblast.<sup>13</sup> The purpose of the upcoming operation was to retake lost territory and to defeat Russian and separatist forces in Luhansk. At about 4:30 a.m., the Ukrainians lost the ability to communicate due to Russian cyber and electronic attack. The formations, prostrate and unable to communicate, were then ruthlessly attacked by Russian multiple-launch rockets and run-of-the-mill tube artillery.<sup>14</sup> The attack crippled the assembled Ukrainian brigades.

Reports indicate that the thrust left 30 Ukrainian soldiers dead and another several hundred injured, and destroyed well over two battalions' worth of vehicles and equipment.<sup>15</sup> The Russian strike at Zelenopillya is a cautionary tale about the perils of keeping armor static on the battlefield and being overly reliant on a digital infrastructure. U.S. Army armor, from the platoon to the division, must break from the digital leash and fight from the hatch. To do otherwise risks quick detection and rapid destruction on the modern battlefield.

## Principle 9

**Armor is a weapon of opportunity.** Building on the idea of armor being employed in accordance with its *raison d'être*, armor's mobility makes it uniquely suited to capitalize on windows of tactical and operational opportunity. Writing on the U.S. Army's armored divisions leading into World War II, MG Bruce Magruder wrote that "[t]he armored division is a weapon of

opportunity. Through its speed, firepower and flexibility of maneuver, it is capable of surprising the enemy and attacking him before he is capable of defense."<sup>16</sup>

Although Magruder was writing about U.S. armored divisions, the principle transcends the defined echelon and instead applies to the function of armor. Armor exists to exploit temporal or situational windows of opportunity. Armor leaders and their formations must be in tune with the flow of battle and be mentally prepared for rapid repurposing to take advantage of the fleeting prospects of providence.

## Conclusion

The previously published "The Principles of the Employment of Armor" set the course for thinking about armor operations upon its initial publication. However, time, an evolving threat environment and technological changes necessitate a fresh look at those principles. Modern armed conflict continues to illustrate that armored warfare isn't going anywhere; it is just adapting to its political, physical and threat environment.

Armor's defining characteristic, tactical and operational mobility, remains just as relevant today as it was when the initial principles were published. Mobility remains armor's baseline, and everything else armor does serves to retain that mobility. That idea – mobility is what sets armor apart from the other combat arms – is what underpins this work and helped generate the updated principles for the employment of armor, which are restated following:

- Principle 1: Armored warfare is mobile warfare, not maneuver warfare;
- Principle 2: Armor dictates the tempo of engagements and battles;
- Principle 3: Armor leaders are decisive and involved;
- Principle 4: Armor penetrates, exploits and pursues;
- Principle 5: Rugged ground cavalry drives armored operations;
- Principle 6: Armor runs the marathon;
- Principle 7: Armored units and leaders know how to fight;
- Principle 8: Armor fights from the

hatch; and

- Principle 9: Armor is a weapon of opportunity.

These principles are not meant to serve as a checklist to drive armor operations. Instead, they are proffered as a mental framework for leaders to think about when framing the employment of armored formations. Seminal armored-warfare theorist Liddell Hart reminds the student of war that “[t]he influence of thought on thought is the most influential factor in history. Yet, being intangible, it is less perceptible than the effects of action and has received far less attention from writers of history.”<sup>17</sup> The principles listed herein are intended to help shape the thought on thought as it relates to the modern employment of armor.

Armor, the combat arm of decision, still holds a special place on the battlefield. Because of this, armor leaders must have a clear understanding of why armor exists and how it should be employed. The principles listed in this article, building on those tendered following World War II, are a place to begin that discussion.

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## Notes

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## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team

**ACR** – armored-cavalry regiment

**CP** – command post

**ISIS** – Islamic State of Iraq and Syria

**R&S** – reconnaissance and security

## Principles of the employment of armor:

- Principle 1: Armored warfare is mobile warfare, not maneuver warfare;
- Principle 2: Armor dictates the tempo of engagements and battles;

- Principle 3: Armor leaders are decisive and involved;
- Principle 4: Armor penetrates, exploits and pursues;
- Principle 5: Rugged ground cavalry drives armored operations;
- Principle 6: Armor runs the

marathon;

- Principle 7: Armored units and leaders know how to fight;
- Principle 8: Armor fights from the hatch; and
- Principle 9: Armor is a weapon of opportunity.

Reprinted from Winter 2019 *ARMOR*

# Shaping the Battlefield: A Framework for the Cavalry

by MAJ Mark Sargent

The Cavalry Leader's Course (CLC) teaches that cavalry conducts reconnaissance and security (R&S) operations to enable commanders in making timely decisions to achieve a position of relative advantage.<sup>1</sup> The cavalry does this by answering the commander's critical information requirements. Indeed, Field Manual (FM) 3-98, *Reconnaissance and Security Operations*, states that the cavalry squadron's primary purpose is to answer the brigade combat team (BCT) commander's priority intelligence requirements (PIR).<sup>2</sup> However, what is missing in this current framework is an appreciation for the "relative" in "position of relative advantage."

Army Doctrine Publication (ADP) 3-0, *Operations*, states: "The side that best understands an operational environment, adapts more rapidly and

decides to act more quickly in conditions of uncertainty is the one most likely to win."<sup>3</sup> There are few who would disagree with this statement or doubt the importance of the cavalry in this process. However, in the current framework, all focus is on the Blue side of this ledger, with the cavalry reducing uncertainty (answering PIR) for the supported commander. The intrinsic contest in this statement – that the enemy is also seeking to learn about the operating environment, adapt to changing circumstances and make swift decisions – is ignored.

This is the significance of the "relative" in "position of relative advantage." Increasing the enemy's uncertainty (or increasing its certainty of a false understanding of the situation)<sup>4</sup> has the same benefit as decreasing the uncertainty of the supported commander. To put it another way, forcing the enemy to make a bad decision, a

late decision or no decision at all makes as great a contribution to its defeat as enabling the supported commander to make a sound and timely decision. Therefore answering PIR can only be half the answer to achieving a position of relative advantage – shaping and disrupting the enemy is the other half. The cavalry can do more to focus on this neglected half of the equation.

## Shaping battlefield

FM 3-98 states that the cavalry "shape[s] the battlefield for the commander." However, there is little explanation of what it means to "shape the battlefield" or how the cavalry might go about this task. There is some discussion of shaping as part of information operations, as well as what might be called *physical shaping* – for example, shaping the enemy onto one axis of advance instead of another. However, there is little if any discussion of



what might be called *cognitive shaping*: disrupting the enemy's command-and-control system, disrupting planning and slowing decision-making. This is a significant omission because targeting the enemy in the cognitive dimension is part of the U.S. Army's operational art.

ADP 3-0 states that *cognitive defeat* is "disrupting decision-making and depriving the enemy of the will to fight." Closely linked to cognitive defeat is the defeat mechanism of disintegration, which seeks to "disrupt an enemy's command-and-control system, degrading its ability to conduct operations and leading to a rapid collapse of the enemy's capabilities or will to fight."<sup>5</sup>

What these definitions describe is degrading an enemy's cohesion. The term *cohesion* in this context is not defined in U.S. doctrine. The U.S. Army concept of multi-domain operations details that cohesion has physical, virtual and cognitive components, but it neglects to include a definition.<sup>6</sup> For purposes of this article, *cohesion* is defined as the ability of a force to exert effective command and control through a combination of planning, execution and adaptation.

From this, one might conclude that to shape the battlefield to achieve a position of relative advantage for the commander, the cavalry should seek to degrade the enemy's cohesion. However, there is little emphasis on this task in the current framework for the cavalry.

## Evolving cavalry framework

FM 3-98 and related publications detail an extraordinarily clear vision of how the cavalry squadron conducts R&S operations in support of the BCT. However, I would contend it is an incomplete vision of the cavalry's purpose and utility. I propose evolving this vision to one that elevates "shaping the battlefield" to the same importance as answering PIR. This shaping effect must extend across the physical, informational and cognitive dimensions. The primary method employed by the cavalry to shape the battlefield would be to degrade the enemy's cohesion. The cavalry would apply

deliberate effort to reduce the enemy's freedom of action, slow and shape decision-making, and pre-empt employment of critical capabilities. This evolved framework would retain its unity of purpose with the current framework, enabling commanders to achieve a position of relative advantage. However, the relative advantage gained would be greater in magnitude, as both sides of the "relative" equation are addressed.

Such a framework is also likely to be more successful when applied within the practical constraints of the battlefield. In particular, it will assist the cavalry to overcome what is consistently the greatest obstacle to mission success: a lack of time. The current framework of answering the brigade commander's PIR as the cavalry's primary purpose works very well – but only when the cavalry squadron is given timely intelligence requirements, linked to actionable decisions. Experience from the combat-training centers (CTCs) shows this is rarely the case. It is common for cavalry squadrons to commence their R&S operations at a CTC without an information-collection (IC) plan. In an uncertain and rapidly changing environment, where the commander is seeking to achieve a high operational tempo, this is probably unavoidable.

However, this new framework will effectively provide the brigade more time. By slowing and shaping enemy decisions, the brigade forces the enemy to protect its own critical capabilities and exposes its contingency forces earlier than it would wish. Thus, the enemy's freedom of action is reduced. As a result, it has less opportunity to devote the cognitive and physical effort needed to advance its plans against the supported force. Consequently the supported force has more time to develop the situation, complete its plan and exploit the position of relative advantage.

Napoleon once told his marshals they could ask him for anything except more time; the framework I describe here for the cavalry would provide that additional time.

## Practical application

What might be the practical changes

of this new framework? Let us consider a scenario that would be familiar to CLC students: A U.S. armored BCT (ABCT) deploys to a friendly nation in Eastern Europe. The brigade mission is to advance from the point of entry to the national capital to support the legitimate government, which is threatened by a separatist movement supported by a hostile major power. A threat mechanized force has blocked the route to the capital. Therefore the ABCT will have to defeat this force to achieve its mission.

Under the current framework, the cavalry squadron's purpose is to answer the BCT commander's PIR. The cavalry squadron would almost certainly conduct either a zone or area reconnaissance to answer these intelligence requirements; a reconnaissance-in-force would be chosen only if no other form of reconnaissance would obtain the required intelligence.<sup>7</sup> The squadron would make contact with the smallest element possible. A reconnaissance tempo would be selected solely on the requirement to best accomplish the reconnaissance tasks.

Scout troops would be employed forward as the primary collection assets, with the tank company employed in-depth to enable local overmatch if reconnaissance assets are threatened. The cavalry squadron would not be tasked to threaten enemy critical capabilities unless the brigade has advanced far enough in the military decision-making process to have completed the high-payoff target list (HPTL).

Of note, all tasks conducted by the cavalry squadron are Blue-focused. There is little if any focus on shaping the enemy other than what is required to answer the intelligence requirements. In this framework, even if the cavalry squadron succeeds in answering the intelligence requirements within the constraint of latest-time-information-is-of-value, the brigade will have to fight an enemy that has not been degraded in any meaningful way. What would result would be a symmetrical contest of strength against strength.

Now let us consider what might change if the cavalry squadron is

tasked to degrade the cohesion of the enemy as well as answer intelligence requirements. In this framework, the squadron might conduct a reconnaissance-in-force rather than a zone or area reconnaissance, even if it is not necessary to obtain the required intelligence. This is due to the reconnaissance-in-force being the best form of reconnaissance to quickly reduce the enemy's freedom of action. The aim is to force the enemy to expend effort to shield itself from the cavalry rather than advance its own designs against the supported force.

The enemy force may be also forced to expose its contingency forces (such as the reserve) and critical capabilities (such as fires assets) earlier than it wishes, exposing it to detection and targeting. The more consistent this pressure on the enemy's freedom of action, the greater will be the impact to the enemy's physical and cognitive cohesion.

As a bonus, the reconnaissance-in-force is often more reliable than more passive forms of reconnaissance in answering threat-based intelligence requirements because it provides the ability to learn from the enemy's reactions.

Adopting this new framework would require a change to the fundamentals that require the cavalry to make contact with the smallest possible element.<sup>8</sup> Instead, the cavalry might seek to degrade the enemy's cohesion by making contact earlier than the enemy expects with a force larger (or at least different) than the enemy expects. This might see the tank company – rather than its being kept in-depth to rescue forward scouts from decisive engagement – being employed forward to make early contact.

It might also see enablers and other combat elements attached from the brigade's main body employed early to present a situation that differs even more from the enemy's expectations. The more unexpected the contact, and the earlier it is gained, the greater the effect on the enemy's cohesion.

Crucially, this unexpected force does not need to become decisively engaged, or even enter into direct-fire contact,<sup>9</sup> to achieve the desired effect.

Merely being detected in uncomfortable proximity earlier than expected will focus the enemy's attention, expose contingency forces early and disrupt its planning and decision-making. Even better: If, after contact is made, the enemy loses contact with that unexpected force, this will compel it to expend cognitive and physical effort to regain contact.

To enable this, the squadron might select a reconnaissance tempo based on the desired effect on the enemy rather than only what is best to accomplish the reconnaissance task. For example, the squadron might select a forceful tempo early in the operation to force contact with the enemy before transitioning to a stealthy tempo to force the enemy to expend effort to regain contact.

In this new framework, the cavalry would also put greater emphasis on pre-empting the enemy's employment of critical capabilities (which might be fires assets, command-and-control nodes, air-defense artillery, sustainment assets, etc.). Currently the cavalry squadron will only be tasked to threaten or strike enemy critical capabilities once the brigade has completed the HPTL, which occurs no earlier than course-of-action development. As a result, there is no effort expended early in the reconnaissance effort when threatening the enemy's critical capabilities, losing the opportunity to have a disproportionate effect on the enemy's physical cohesion and decision-making.

Pre-empting the employment of the enemy's critical capabilities does not necessarily imply directly striking it in the manner of the targeting process. Instead, the aim is to force the enemy to expend effort to shield its critical capabilities rather than employ that same effort to use those critical capabilities to advance its own plans. Something as simple as holding a friendly force in uncomfortable proximity to the enemy critical capability will do this (which reinforces the desirability of making early contact with a large or unexpected force).

A more audacious method might be to conduct a raid. A more subtle method might be to deliberately fly a tactical

unmanned aerial vehicle (UAV) low, slowly and overtly over enemy critical capabilities. The enemy, knowing its critical capability has been compromised, will be forced to displace or take other action to shield that asset. The more unexpected these actions, the more closely sequenced in time and widely in space, the greater the effect on physical and cognitive cohesion.

This evolved framework will place more responsibility on cavalry commanders at all levels. In particular, the new framework cannot succeed without a mature culture of mission command. Cavalry commanders must be comfortable acting before receiving a complete IC plan, and this requires a thorough appreciation of the commander's intent. Cavalry commanders must be comfortable seizing fleeting battlefield opportunities without receiving guidance from "above." Clearly, this will strain the mutual-trust aspect of mission command. Commanders must develop this trust in training and be willing to accept failure by subordinates in training to do so.<sup>10</sup>

## Future

This evolved framework for cavalry operations should prove more future-proof than the current one. There are many other assets besides the cavalry that can answer intelligence requirements, and as technology progresses, those assets will get better and more numerous. There is already pressure on the cavalry to justify its existence in an environment where UAVs and other technical systems are seen to be more reliable methods for informing commander's decisions.

However, no other asset has the ability to interact with the environment and the enemy in the manner of the cavalry. No other asset can provide consistent pressure to the enemy's freedom of action, force the enemy to react to the unexpected, and slow and shape decisions in the manner of the cavalry. In short, no other force can put the "relative" in "position of relative advantage."

No emerging technology, including unmanned systems, will change this. Until the enemy's forces are commanded and controlled by artificial intelligence

(many decades away, at least), the key enemy vulnerability will be between the ears of their commanders.

In addition, this evolved framework will be better suited to the future operating environment of multi-domain operations. In this future operating environment, BCTs will be expected to execute convergence (integration of capabilities in all domains) and cross-domain maneuver to defeat adversaries. In this context, the purpose of convergence is to break the physical, virtual and cognitive cohesion of enemy forces, causing their defeat.<sup>11</sup>

This is the same purpose as the framework for the cavalry outlined in this article. Of course, the cavalry squadron of the future will need augmentation with more capabilities to fully contribute to multi-domain operations. However, the cavalry will already have a doctrinal and intellectual framework to apply to the new environment.

## Conclusion

This article has proposed evolving the current framework of the cavalry into one that elevates shaping the battlefield to the same importance as answering PIR. The primary method to shape the battlefield would be to degrade the enemy's cohesion. This would be accomplished by reducing the enemy's freedom of action, slowing and shaping decisions, and preempting the employment of critical capabilities. Such a framework would be more effective within the practical

constraints of the battlefield, particularly the lack of time for the BCT to complete a sound IC plan. It would also be more future-proof in a world of increasing technology and automation, as well as being more suited to the future of multi-domain operations.

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## Notes

<sup>1</sup> CPT Timothy C. Lee, "From the Screen: Why Does Cavalry Still Matter?", *ARMOR*, Winter 2020 edition.

<sup>2</sup> FM 3-98.

<sup>3</sup> ADP 3-0.

<sup>4</sup> See the two types of military deception: ambiguity-increasing and

ambiguity-decreasing, in FM 3-13.4, *Army Support to Military Deception*.

<sup>5</sup> Ibid.

<sup>6</sup> U.S. Army Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*.

<sup>7</sup> FM 3-98.

<sup>8</sup> Ibid.

<sup>9</sup> Implied here is that the cavalry squadron has already made visual or electronic contact with this enemy force according to the R&S fundamental to gain and maintain enemy contact.

<sup>10</sup> L. Burton Brender, "The Problem with Mission Command," *The Strategy Bridge*, September 2016,

[https://www.realcleardefense.com/articles/2016/09/02/the\\_problem\\_of\\_mission\\_command\\_110008.html](https://www.realcleardefense.com/articles/2016/09/02/the_problem_of_mission_command_110008.html); accessed July 30, 2020.

<sup>11</sup> TRADOC Pamphlet 525-3-1.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team

**ADP** – Army doctrine publication

**BCT** – brigade combat team

**CTC** – combat-training center

**FM** – field manual

**HPTL** – high-payoff target list

**IC** – information collection

**PIR** – priority intelligence requirement

**R&S** – reconnaissance and security

**TRADOC** – U.S. Army Training and Doctrine Command



## Brigade Combat Team's Reconnaissance, Security Achilles Heel: the Cavalry Squadron Liaison Officer

by MAJ James M. Plutt and  
CPT Christopher M. Salerno

*A cavalry squadron continues a deliberate and forceful zone reconnaissance, slowly collapsing the enemy forces' disruption zone. The squadron is in Hour 24 of continuous-reconnaissance operations against a near-peer threat. They have intentionally reduced their electromagnetic signature (EMS) while also facing every form of enemy contact, with three troops operating outside the mutually supporting range.*

*The brigade combat team's (BCT) main body crosses the line of departure in eight hours. The squadron was fully integrated in the BCT's initial military decision-making process before moving from the tactical-assembly area (TAA) to the initial screen position, and it is currently executing the BCT's information-collection (IC) plan. The BCT's unmanned aerial system (UAS) platoon determines that a named area of interest (NAI) lacks enemy presence, cueing a cavalry troop forward to the next NAI.*

*The field-artillery battalion has a*

*battery in position ready to fire against the BCT high-payoff target list and squadron-nominated targets. A Prophet (a 24-hour, all-weather, near-real-time, ground-based, tactical signals intelligence/electronic warfare capability) collection team oriented in a search area develops an NAI based on emitter activity, confirming an enemy force within the zone. A cavalry troop was maneuvering during an area reconnaissance of a different NAI, but the troop commander adjusts the scheme of maneuver to emplace the mortar section and employ the RQ-11B Raven small UAS (SUAS).*

*The mixing effect between the Prophet and the SUAS provides the cavalry troop an accurate picture of a mounted anti-tank (AT) section. The cavalry-troop commander is able to use the mortar section to suppress the AT threat while dismounted scout squads maneuver to destroy the AT section using Javelin. Based on the synchronized reconnaissance and security (R&S) guidance among the BCT, squadron and troop, the troop commander assessed the threat and destroyed it using the cueing effect from the Prophet*

*without unmasking the artillery battery or requesting BCT assets or an enabler not already allocated.*

Synchronization among echelons is highest when units are close together and leaders can coordinate in detail at the start of the operations process. A BCT conducts multiple phases of the operations process simultaneously. This process is stressed as subordinate elements are in multiple forms of contact; commanders and leaders are dispersed across the depth and breadth of the BCT's area of operation; and the BCT battle rhythm is straining the primary, alternate, emergency and contingency (PACE) plan to maintain situational understanding. It becomes challenging to maintain synchronization.

How do BCTs do this at distance once outside the TAA? All BCTs should strive for this level of synchronization during the reconnaissance fight.

Cavalry squadrons can locate their squadron main command post (CP) alongside the BCT main to force this synchronization, but at a cost. The squadron tactical CP (TAC) must fight

forward more often, separating the squadron commander and operations officers from the planning process, limiting their ability to drive a continuous operations process nested to support the BCT.

This article proposes three suggestions for improving synchronization from the status quo:

- Option 1: mirror the liaison-officer (LNO) package of a combined-arms battalion (CAB) or infantry battalion;
- Option 2: use the headquarters and headquarters troop (HHT) commander and squadron targeting officer; or
- Option 3: create a brigade R&S element (BRSE).

This article recommends Option 3 as ideal and Option 2 as interim; the BRSE is the ideal solution to the cavalry-squadron LNO dilemma. The BRSE solves this problem and allows the squadron increased ability to fight the formation forward and remain aligned with the BCT over sustained operations.

## Option 1

The squadron requires an LNO, but it is not currently authorized an LNO within the modified table of organization and equipment (MTOE). A squadron can use an excess officer, but this undermines the effort to build long-term proficiency or establish any importance around the position. The Army authorizes an LNO for the CABs and infantry battalions within the BCTs, and it equips those LNOs with the necessary equipment to move and communicate between the BCT and their respective CAB or infantry battalion. An MTOE update that includes an LNO and equipment similar to other units would better facilitate the linkage between the cavalry squadron and BCT.

A standard LNO package based off what the Army already authorizes would include an Armor first lieutenant with a vehicle, radio and Joint Battle Command-Platform. This would be a step in the right direction, but this option does not provide the right capability. A cavalry squadron needs an LNO who can effectively plug into the BCT's operation process.

A typical LNO is well-positioned to answer requests for information (RFI) between the BCT and his/her respective battalion. A squadron LNO could replicate this; his/her intimate knowledge of the squadron and its capabilities better enables the BCT during current operations. He or she could reach back to the squadron's main CP or combat-trains CP (CTCP) and ensure the brigade's common operating picture (COP) is accurate.

The quick reachback capability provides the operations officer the ability to address multiple issues at once without desynchronizing efforts across the brigade. The operations officer may want to know when the squadron will rise above 80-percent combat power while the brigade's main effort is seizing an objective. The ability to gather information enhances the BCT's decision-making process, but this type of LNO package is limited to aggregating decisions from multiple like units vs. advocating for enablers.

This solution fails to recognize that the cavalry squadron controls the preponderance of the BCT's ground R&S capability and serves as the headquarters that executes the BCT's IC plan. The cavalry squadron conducts operations earlier, more dispersed and across greater depth than any other maneuver formation organic to the BCT. Squadrons require synchronized support of the BCT across all warfighting functions. Also, the squadron needs access to echelons-above-brigade (EAB) resources at key times to accomplish its mission and enable the BCT.

The BCT and its cavalry squadron can achieve synchronization when all leaders within a BCT are in close proximity during the first turn of the operations process. This becomes untenable as the fighting progresses and squadron senior leaders are unavailable to assist the BCT in planning R&S efforts for the next phase. This portends a lack of influence in the BCT planning process and a decrease in the quality of R&S planning and warfighting products.

The cavalry squadron operates on a condensed timeline compared to the CABs and infantry battalions and is continuously conducting operations

while the BCT plans. Mirroring the LNO and associated equipment from a CAB or infantry battalion will prove insufficient for the cavalry squadron during large-scale combat operations (LSCO).

The squadron needs to be properly represented within the BCT's working groups to enable its success in LSCO. The recently updated Field Manual (FM) 3-96, **Brigade Combat Team**, aligns a battlefield framework with FM 3-0, **Operations**, and displays deep, close, rear, support and consolidation areas. FM 3-96 defines the deep area as "where the commander sets conditions for future success in close combat."<sup>1</sup>

From the forward edge of the close area to the coordinating fireline, the BCT retains a deep maneuver area for conducting R&S operations. The cavalry squadron needs access to EAB assets to integrate lethal and non-lethal effects that enable it to conduct R&S in the deep area as part of the BCT's IC plan.

An example BCT battle rhythm outlined in Army Techniques Publication (ATP) 3-60, **Targeting**, outlines a targeting working group and targeting decision board.<sup>2</sup> There is no representation from the squadron outlined in either of the meetings as templated. The cavalry squadron's unique role requires it to be represented within the BCT main CP to ensure that it can execute combined-arms R&S operations over extended lines of communication to generate and preserve options for the BCT commander.

## Option 2

A solution exists within the cavalry squadron already: the targeting warrant officer and the HHT commander. The cavalry squadron requires a leader who can advocate on the commander's behalf and is trusted as an adviser by the BCT commander. No individual short of committing one of the squadron's three field-grade officers meets this in the same way as the HHT commander – a trusted senior Armor captain already handpicked for that role by the BCT commander. Furthermore, the targeting officer, paired with the HHT commander, serves to align the squadron within the BCT's targeting process.

This package is suitable, flexible and acceptable within every BCT in the Army. It already exists within the formation and would serve to properly position leaders on the battlefield to best enable the cavalry squadron to support the BCT.

This solution provides more than simple ease of communication to action RFI, a role typical of a CAB LNO. It incorporates the cavalry squadron into the BCT battle rhythm, specifically within IC planning, R&S teaming, nesting transitions and targeting. This course of action puts a trusted leader into the main CP to interact with the BCT commander and BCT operations officer. It allows the cavalry squadron to project requirements aligned against the air-tasking order (ATO) and bring resources into alignment to support its actions in the deep maneuver area several days in advance.

The most compelling argument for this option is the ability to advocate for the squadron during continued

combat. It is unrealistic to maintain the full PACE plan from squadron to BCT over distance and against a near-peer adversary. Periodically the squadron will limit EMS operations to increase stealth and protection, which also limits its ability to coordinate and plan at distance.

There will also be windows of time when the squadron main CP is executing a movement. At that point, an alternate CP, often the CTCP, will execute command-and-control but with less capability to exercise the full PACE to the BCT. The squadron operating in the deep maneuver area and in a communication-denied environment will not have the ability to directly tie in to planning efforts in the BCT's main CP.

If a targeting meeting occurs over an Upper Tactical Internet (TI) medium and the squadron is not on Upper TI, it instantly becomes less nested with its higher headquarters as the BCT continues executing continuous operations and the squadron is unable to

conduct collaborative planning. As the BCT continues to plan for the next fight, the physical presence of the squadron HHT commander and targeting officer serves as the key to ensuring continuity of the operations process while the cavalry squadron conducts continuous R&S operations.

The downside of this option is that it removes the HHT commander from the CTCP. This, however, is easily mitigated. The forward-support troop (FST) commander is capable of commanding the CTCP. The FST commander can work with the S-1 and S-4 to maintain a COP and, when necessary, assume responsibility of the current operation, with the TAC joining the CTCP as the main CP jumps.

The FST commander is well-positioned to influence sustainment planning at the CTCP. The FST first sergeant, with the FST executive officer and a small team, can lead the field-trains CP (FTCP), either within the brigade-support area (BSA) or forward. The FTCP



Figure 1. Reconnaissance is continuous. (From the Maneuver Center of Excellence "Fundamentals of Reconnaissance" poster series, <https://www.benning.army.mil/armor/fundamentals/RF-3.html>)

remains positioned to facilitate the flow of personnel, equipment and supplies to and from the BSA.

This option is feasible within the current MTOE but lacks a critical capability. A key component missing is direct representation of the intelligence warfighting function from the squadron at the BCT main. Though the HHT commander is well-suited to advise the BCT commander and S-3 in the absence of the squadron commander and S-3, he/she may not be best suited to integrate into the BCT intelligence cell. Theater and joint echelons apportion IC resources to subordinate echelons. Corps and divisions allocate support and intelligence capabilities to the BCT. The HHT commander working alone on behalf of the squadron may be less useful in synchronizing BCT and EAB collection assets with the squadron's maneuver in the deep area than if he/she is paired with a military-intelligence (MI) captain working on behalf of the squadron.

### Option 3

The final option presented in this article is to create a BRSE that plugs into the BCT's main CP. This can be adopted in one of two ways: it may be additive to the MTOE or represent slightly creative application to the existing MTOE.

Following are examples of each:

- **Package 1 (MTOE change)** – The total package would include an Armor Branch major, Armor captain, MI captain and the squadron's targeting officer. The Armor major, Armor captain and MI captain would be added to the current MTOE. This package provides maximum ability to simultaneously integrate with the brigade intelligence-support element, BCT plans, BCT current operations and the BCT fires cell.

The Army would need to authorize several more billets for this package. The Armor-major position may not be a key-development billet, and this may stretch time on stations and effect evaluations, but it does increase the squadron's synchronization with brigade.

- **Package 2 (MTOE reorganized)** – This package, less optimal than

Package 1, mitigates the weakness identified in Option 2. The BCT is currently authorized three MI captains and one MI first lieutenant. The MI captain slotted as the BCT assistant S-2 would be authorized to the squadron as part of the BRSE. By providing the MI captain from the BCT and pairing him/her with the squadron's targeting officer and HHT commander, the BCT can create a package that can advocate on the squadron's behalf, keep the squadron nested within the BCT operations process, and ensure integration and synchronization of enabling capability into the scheme of maneuver.

There is a common misconception that when reconnaissance ends, security begins, whereas the reality is that reconnaissance is continuous. (Figure 1.) It is often expressed that the squadron's efforts are offset from the brigade's efforts. The squadron is operating at a high level while the brigade prepares, but after the reconnaissance handover the squadron is now at a low tempo.

Another misconception is that a BRSE cell is excessive because it is only needed for part of the operation and is unnecessary once the brigade transitions away from R&S operations. This is a misconception because reconnaissance is continuous throughout the operation. A brigade that can truly synchronize its reconnaissance should use a BRSE to ensure reconnaissance is continuous.

The brigade's main effort may be actively seizing an objective, but the squadron is not sitting in a TAA awaiting a break in the battle. The squadron should be moving forward and setting conditions for the next transition. A BRSE cell contains the requisite experience required to facilitate this:

- The cell ensures ATOs support the squadron's movement.
- It helps ensure that the commander's critical information requirements remain current and valid to properly orient the squadron's reconnaissance efforts.
- It also ensures that the holistic effort of the BCT's IC plan properly integrates the capabilities and

capacity of the cavalry squadron in scheme of maneuver.

- Finally, the cell serves as the bridge between the squadron and the brigade, enabling the squadron commander to fight the formation.

## Conclusion

The BCT operations officer is the primary staff officer who integrates and synchronizes the operation as a whole for the BCT commander. Options 1, 2 and 3 all provide an increased capability to assist the S-3 in integrating the cavalry squadron and in maximizing its ability to conduct R&S operations for the BCT. At extended distance and against a peer/near-peer threat, the cavalry squadron needs experienced leaders representing critical warfighting functions to represent the squadron across the BCT's battle rhythm events within the BCT's main CP.

There is a cost-benefit analysis that must be done regardless of what option is selected, but choosing Option 2 or 3 will have an outsized benefit to the squadron being able to maintain itself at the right place and time with the right resourcing and enabling capability to continue to maneuver during R&S operations. The Army should adopt Package 1 from Option 3 as an investment in the future of R&S operations.

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### Notes

<sup>1</sup> FM 3-96, *Brigade Combat Team*, January 2021.

<sup>2</sup> ATP 3-60, *Targeting*, May 2015.

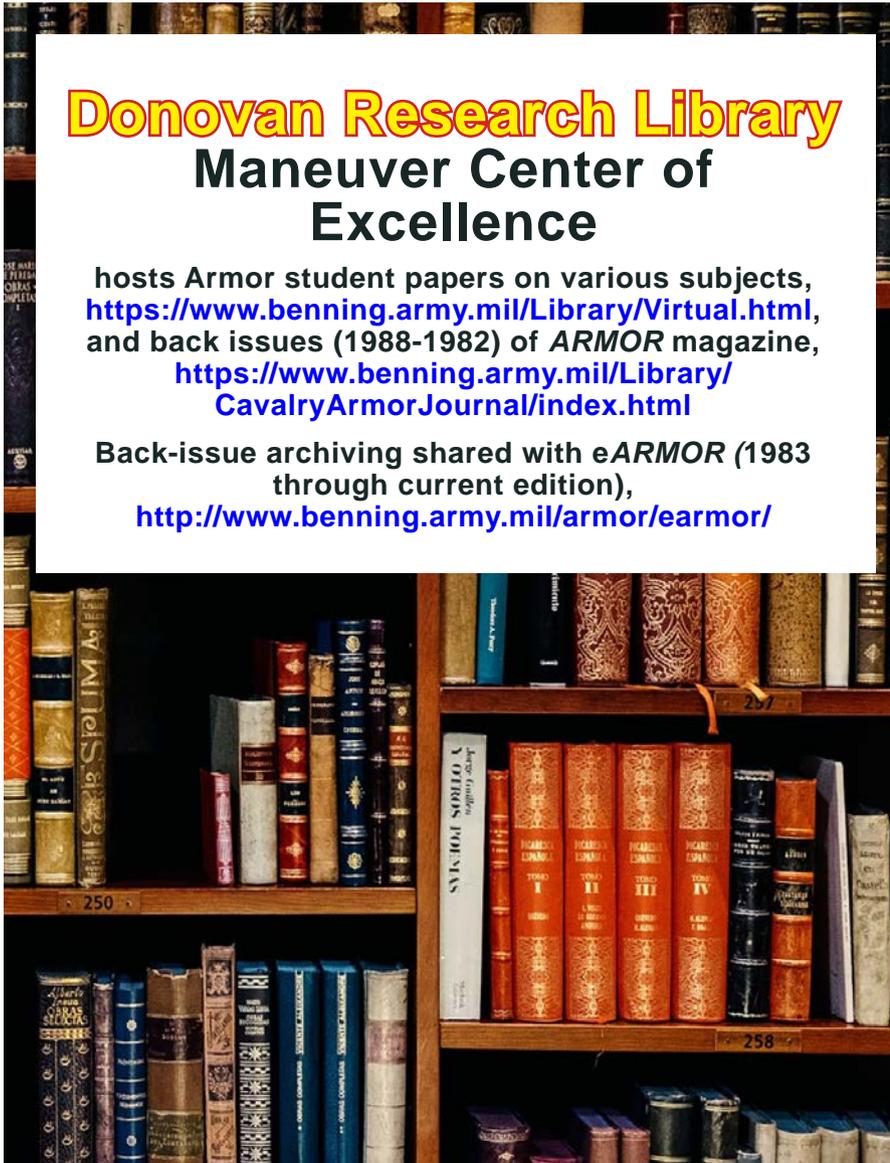
### ACRONYM QUICK-SCAN

- AT – anti-tank
- ATO – air-tasking order
- ATP – Army techniques publication
- BCT – brigade combat team
- BfSB – battlefield surveillance brigade
- BRSE – brigade reconnaissance and security element
- BSA – brigade-support area
- CAB – combined-arms battalion
- COP – common operating picture
- CP – command post
- CTCP – combat-trains command post
- EAB – echelons above brigade
- EMS – electromagnetic spectrum
- FM – field manual
- FST – forward-support troop
- FTCP – field-trains command post
- HHT – headquarters and headquarters troop
- IC – information collection
- JBLM – Joint Base Lewis-McChord
- LNO – liaison officer
- LSCO – large-scale combat operations
- MCCC – Maneuver Captain's Career Course
- MI – military intelligence
- MTOE – modified table of organization and equipment
- NAI – named area of interest
- NTC – National Training Center
- PACE – primary, alternate, contingency and emergency
- RFI – request for information
- R&S – reconnaissance and security
- SUAS – small unmanned aerial system
- TAA – tactical-assembly area
- TAC – tactical command post
- TI – tactical Internet
- UAS – unmanned aerial system

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Back-issue archiving shared with e*ARMOR* (1983 through current edition), <http://www.benning.army.mil/armor/earmor/>



# The Fight for Information:

## Company D (Tank) as Reconnaissance Asset in an Armored Brigade Combat Team Cavalry Squadron

by CPT Tyler D. Stankye

The armored brigade combat team (ABCT) cavalry squadron is the only squadron built to conduct a reconnaissance-in-force (RIF); taking away the tank company removes that capability. The RIF is one of the five reconnaissance tasks assigned to a cavalry formation,<sup>1</sup> but it is often performed as a movement-to-contact or threat-focused zone reconnaissance due to the lack of a preplanned exfiltration or exploitation force.<sup>2</sup>

Company D can be the exfiltration and/or exploitation force that allows a squadron to conduct a doctrinal RIF. It is critical that Company D remain task-organized in the squadron to execute the full range of reconnaissance tasks. Further, task-organizing away from the squadron violates the “do not leave reconnaissance assets in reserve” reconnaissance fundamental.<sup>3</sup>

### Battlefield calculus

The ABCT cavalry squadron is the largest battalion-sized combat formation in the Army. The squadron’s Company D is an organic tank company with a full complement of 14 M1A2 System Enhanced Package V3 Abrams tanks.<sup>4</sup>

In terms of ratio-of-force, Company D brings significant combat power to the

reconnaissance fight. It can defeat a platoon of defending enemy main battle tanks (MBTs) or an equivalent force,<sup>5</sup> or enemy combat-security outposts in the friendly security zone.<sup>6</sup>

The tank company exploits the information gained by the cavalry troops or reinforces the troops to seize, retain and exploit the initiative. Company D can also defend against a battalion-sized formation of enemy MBTs<sup>7</sup> or an attacking battalion detachment<sup>8</sup> to allow the reconnaissance force to retrograde.

Whether it stays as an organic company or task-organizes a platoon to each cavalry troop, Company D increases the operational distances the cavalry squadron can operate in. According to the width formula (Table 2),<sup>9</sup> the planning width for an ABCT cavalry troop in unrestricted terrain is 18 kilometers.<sup>10</sup> Consequently, the squadron with three reconnaissance troops can plan for 54 kilometers without the tank company.<sup>11</sup>

Company D adds 21 kilometers to the width, assuming no change to flank security because the M2A3 Bradley Fighting Vehicles will be on both flanks.<sup>12</sup> When task-organized to the troops, a tank platoon adds about seven kilometers to each troop.<sup>13</sup>

Operational variables will dictate the depth that can be covered based on the command and staff’s assessment.<sup>14</sup>

### Task-organization<sup>15</sup>

There are two main ways to task-organize Company D within the squadron to optimize its ability to conduct RIF. In the first task-organization, Company D remains pure and separate from the cavalry troops. The commander commits the company based on a well-thought-out decision-support matrix (DSM)<sup>16</sup> and commander’s reconnaissance guidance.<sup>17</sup>

In the second task-organization, the commander task-organizes tank platoons within each of the cavalry troops. This is the “hunter-killer” concept.<sup>18</sup>

Both task-organizations have a distinct mix of mass, flexibility and tempo. The commander must carefully weigh these benefits against the operational variables, a contiguous vs. non-contiguous area of operations (AO) and commander’s intent.

### Movement and maneuver

The Company D “pure” concept offers the advantages of mass, flexibility and centralized control of the company.

Friendly mission	Position	Friendly : Enemy
Delay		1:6
Defend	Prepared or fortified	1:3
Defend	Hasty	1:2.5
Attack	Prepared or fortified	3:1
Attack	Hasty	2.5:1
Counterattack	Flank	1:1

**Table 1. Historical minimum planning ratios.** (Adapted from Table 9-2, *Field Manual (FM) 6-0, Commander and Staff Organization and Operations*)

The cavalry troops conduct a RIF within their own respective AOs. Company D is staged behind them, prepared to be the exploitation or exfiltration force.

While the cavalry troops are conducting their reconnaissance, Company D plans to support one or all of them while out of contact because of standoff. The squadron commander commits Company D as the exploitation or exfiltration force for one or all troops based off the commander's DSM and commander's reconnaissance guidance.<sup>19</sup>

This task-organization retains the squadron commander's control of Company D in total and the ability to mass direct-fire effects anywhere in the AO. However, there is a slower tempo as Company D maneuvers to the forward-line-of-own troops from the rear staging area.

The "hunter-killer" concept offers the advantages of tempo and decentralized control by providing each cavalry troop with a tank platoon.<sup>20</sup> Hunter-killer teams allow troop commanders to control the tanks and maintain a higher tempo (although at lower mass than the "pure" concept) with the tanks moving with them. Hunter-killer limits the size of the enemy force that each troop can reasonably defeat – with only one tank platoon rather than a whole company<sup>21</sup> – but it does provide equal firepower across the formation. This is beneficial when the enemy is spread out over the AO and not

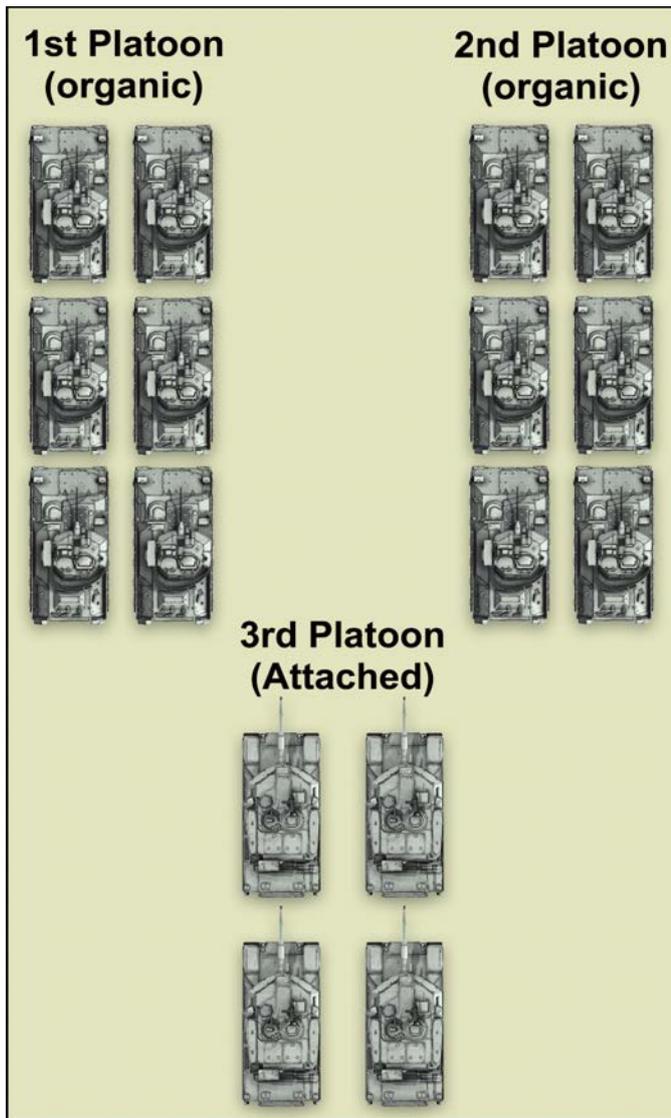


Figure 1. Cavalry squadron.

massed at a single position.

## Sustainment considerations

The last consideration is the sustainment warfighting function. The "pure" concept is the easier of the two to sustain. Company D is centrally located with all its organic logistics assets<sup>22</sup> relatively close to the squadron sustainment nodes.<sup>23</sup> The company can execute its own logistics plan without input from or coordination with the cavalry troops. The squadron sustainment footprint expands only when Company D commits forward to support one of the troops.

The "hunter-killer" concept is more logistically challenging. It adds the burden of sustaining a tank platoon to a cavalry troop that does not have

organic assets to support tanks' logistical requirements,<sup>24</sup> thereby shortening the amount of time the squadron can sustain the heightened tempo. One option to overcome this hurdle is to task the Company D commander to coordinate logistics with the cavalry troops.<sup>25</sup>

The squadron commander can also divide Company D's sustainment assets among the reconnaissance troop to provide it an organic capability. However, this increases the size of the reconnaissance troops' headquarters element and troop trains.<sup>26</sup>

## Conclusion

The ABCT cavalry squadron is the only squadron built to conduct a RIF, but taking away the tank company removes that capability. Company D fulfills the doctrinal requirement for an exploitation and/or exfiltration force. There is a benefit to the frontage the squadron can cover because of the inclusion of tanks in the width equation.

A RIF mission does, however, require the squadron commander to weigh the tactical and sustainment benefits and challenges associated with the two task-organizations. The benefits of a doctrinal RIF require the brigade commander to leave the tank company with the squadron to maximize its use as a reconnaissance asset.

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The same width and depth formula is expressed here two different ways:

**Width formula**

Width = (0.5 weapons system maximum effective range) x (0.75 number of vehicles) x terrain + flank security

Depth = width/2

Expressed another way:

$$(((.5R)(.75Nv)) \times t) + F = W$$

$$.375 RNvT + F = W$$

**Depth formula**

D = W/2 (depth will not be greater than 1/3 maximum effective range of internal direct-fire assets)

**Number of vehicles**

$$Nv \times .75$$

$$6 \times .75 = 4.5$$

$$5 \times .75 = 3.75$$

$$4 \times .75 = 3$$

$$3 \times .75 = 2.25$$

$$2 \times .75 = 1.5$$

**Legend**

D – depth

F – flank security

Nv – number of vehicles in formation

R – maximum effective range of weapon system

T – terrain

T – 1 for unrestricted

T – .5 for restricted

T – .25 for severely restricted

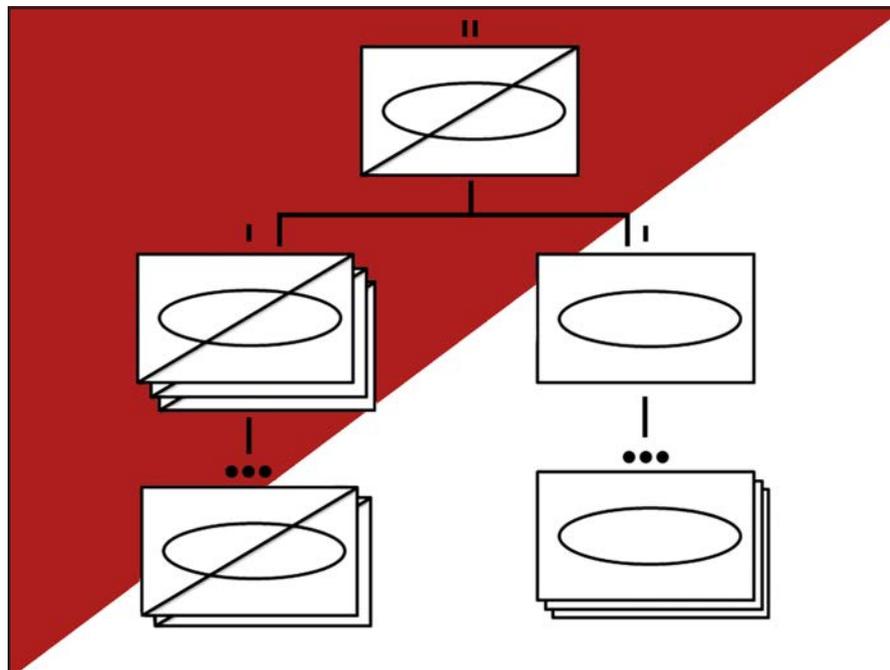
W – width

**Table 2. Scout platoon width/depth formula.** (Adapted from *Army Techniques Publication (ATP) 3-20.97, Cavalry Troop*)

**Notes**

<sup>1</sup> ADP 3-90, *Offense and Defense*, Washington, DC: U.S. Government Publishing Office, 2019.

<sup>2</sup> Center for Army Lessons-Learned, *CTC Trends FY19*, No. 20-10, Fort Leavenworth, KS: Department of the Army, 2020.



**Figure 2. ABCT cavalry squadron with Company D remaining as an organic tank company.**

<sup>3</sup> FM 3-98, *Reconnaissance and Security Operations*, Washington, DC: U.S. Government Publishing Office, 2015.

<sup>4</sup> Ibid.

<sup>5</sup> CPT Kyle Hoisington, “Understanding Reconnaissance Missions Instead of Focusing on Reconnaissance Platforms,” *ARMOR*, July-September 2015; *CTC Trends FY19*.

<sup>6</sup> Maneuver Center of Excellence (MCoE) Supplemental Manual 3-90, *Force Structure Reference Data: Brigade Combat Teams*, Fort Benning, GA: Maneuver Capabilities Development and Integration Directorate, 2018.

<sup>7</sup> FM 6-0, *Commander and Staff Organization and Operations*, Washington, DC: U.S. Government Publishing Office, 2014.

<sup>8</sup> Training Circular (TC) 7-100.2, *Opposing Force Tactics*, Washington, DC: U.S. Government Publishing Office, 2020; accessed May 31, 2021, [https://odin.tradoc.army.mil/TC/TC\\_7-100.2\\_Opposing\\_Force\\_Tactics](https://odin.tradoc.army.mil/TC/TC_7-100.2_Opposing_Force_Tactics).

<sup>9</sup> FM 6-0.

<sup>10</sup> TC 7-100.2.

<sup>11</sup> ATP 3-20.97, *Cavalry Troop*, Washington, DC: U.S. Government Publishing Office, 2016.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> ATP 3-20.96; FM 6-0.

<sup>17</sup> ATP 3-20.96.

<sup>18</sup> FM 6-0; ATP 3-20.96.

<sup>19</sup> FM 3-98; ATP 3-20.96.

<sup>20</sup> 6<sup>th</sup> Squadron, 9<sup>th</sup> Cavalry Regiment, *Hunter-Killer TACSOP*, informally published, last modified July 2, 2018.

<sup>21</sup> FM 3-98; ATP 3-20.96.

<sup>22</sup> *Hunter-Killer TACSOP*.

<sup>23</sup> FM 6-0.

<sup>24</sup> MCoE Supplemental Manual 3-90.

<sup>25</sup> ATP 3-20.96.

<sup>26</sup> *Hunter-Killer TACSOP*; MCoE Supplemental Manual 3-90.

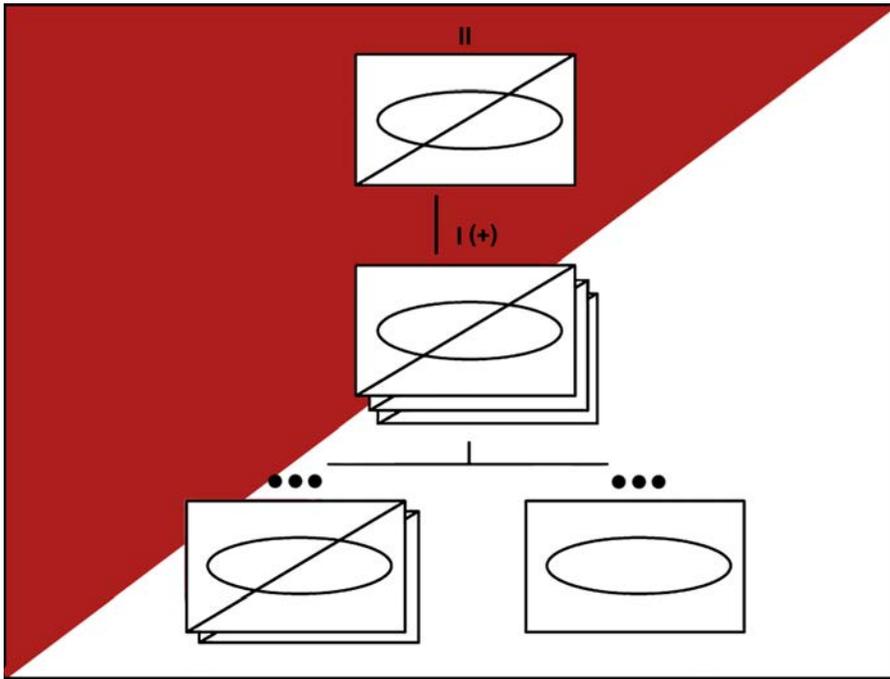


Figure 3. ABCT cavalry squadron with Company D tank platoons task-organized to the reconnaissance troops.

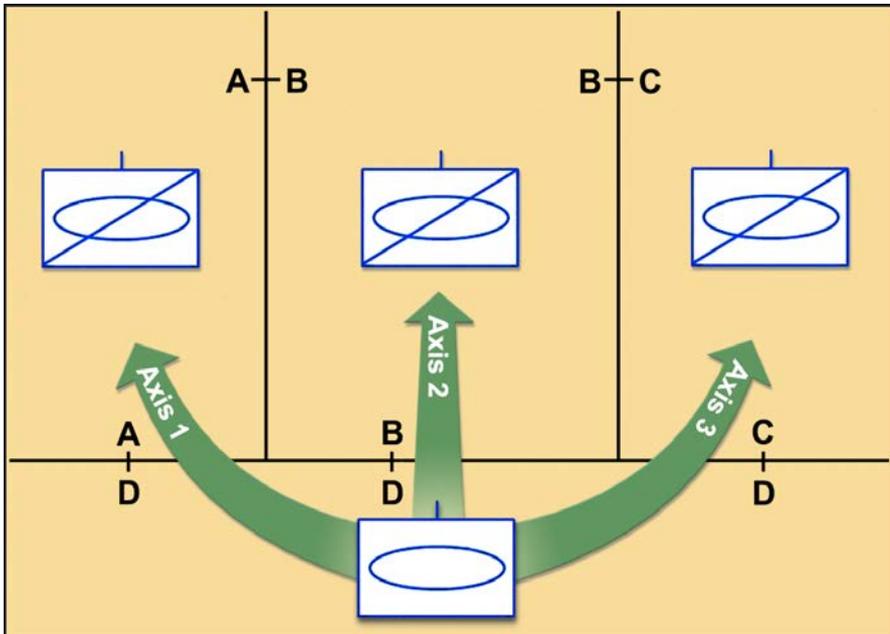


Figure 4. Operational graphics for a squadron RIF. Company D stays organic, with flexibility to support any troop as dictated by the DSM.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team  
**ADP** – Army doctrine publication  
**AO** – area of operation  
**ATP** – Army techniques publication  
**DSM** – decision-support matrix  
**FM** – field manual  
**MBT** – main battle tank  
**MCoE** – Maneuver Center of Excellence  
**MTC** -- movement-to-contact  
**RIF** – reconnaissance-in-force  
**TACSOP** – tactical standing operating procedure  
**TC** – training circular

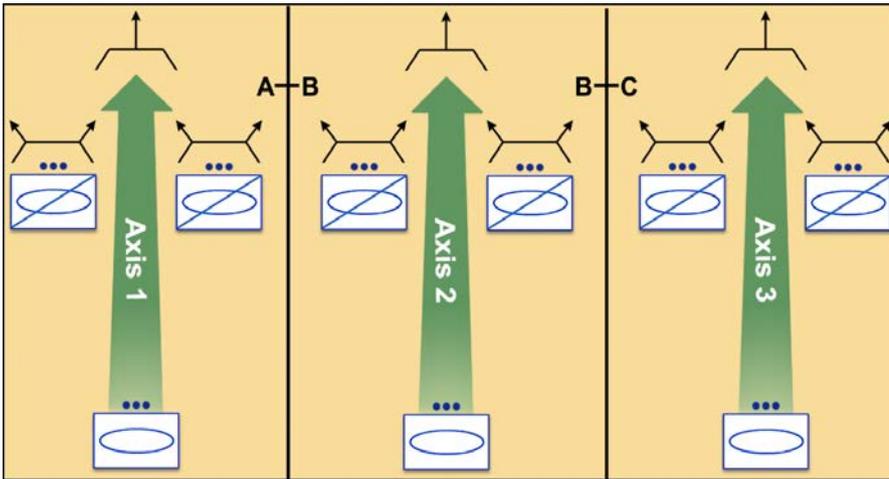
## RIF vs. MTC

The reconnaissance-in-force (RIF) is a complex form of reconnaissance frequently mislabeled as a movement-to-contact (MTC).

The Army defines a RIF as a “type of reconnaissance operation designed to discover or test the enemy’s strength, dispositions and reactions or to obtain other information. A commander assigns a [RIF] when an enemy force is operating within an area and the commander cannot obtain adequate intelligence by other means. The unit commander plans for both the retrograde or reinforcement of the friendly force (in case it encounters superior enemy forces) and for the exploitation of its success.”<sup>1</sup>

Whereas an MTC is a “type of offensive operation designed to develop the situation and to establish or regain contact. The goal of an [MTC] is to make initial contact with a small element while retaining enough combat power to develop the situation and mitigate the associated risk. ... Commanders conduct an [MTC] when an enemy situation is vague or not specific enough to conduct an attack. ... Once an enemy force makes contact, the commander has five options: attack, defend, bypass, delay or withdraw.”<sup>2</sup>

Though similar in nature, the key difference between the two is their purposes. A RIF is used to obtain information on an enemy and/or test its reactions. An MTC’s purpose is to gain contact and develop the situation. The RIF ends when the enemy is handed off to



**Figure 5. Operational graphics for a squadron RIF where Company D platoons are task-organized to each reconnaissance troop in a “hunter-killer” concept.**

the exploitation or exfiltration force, whereas an MTC transitions to attack, defend, bypass, delay or withdraw. They are interconnected, though, as a brigade generally tasks the cavalry squadron with a RIF as part of the brigade’s MTC with a combined-arms battalion as the exfiltration or exploitation force.<sup>3</sup>

## RIF vs. threat-focused zone recon

Commanders frequently use RIF interchangeably with threat-focused zone reconnaissance.<sup>4</sup> As with MTC, a threat-focused reconnaissance is similar to a RIF with a few key differences.<sup>5</sup>

The Army defines a zone reconnaissance as a “type of reconnaissance operation that involves a directed effort to obtain detailed information on all routes, obstacles, terrain and enemy forces within a zone defined by boundaries. ... Commanders assign a zone-reconnaissance mission when they need [more] information on a zone

before committing other forces. Zone reconnaissance is the most time- and resource-intensive form of reconnaissance.”<sup>6</sup>

The difference between the two forms of reconnaissance is the type and amount of information the commander needs and the level of risk the commander is willing to assume to gain that information.<sup>7</sup>

- A RIF is purely threat-focused and seeks to elicit information on the enemy’s reactions through contact.<sup>8</sup> It requires the commander to assume risk through permissive engagement criteria mitigated through the planned commitment of an exploitation or exfiltration force.<sup>9</sup>
- A zone reconnaissance seeks to gain detailed information on all factors within a zone before making a decision to commit main body forces to that zone.<sup>10</sup> In a threat-focused zone reconnaissance, the commander focuses on collecting detailed information on the enemy

forces within a zone with either restrictive or permissive engagement criteria.<sup>11</sup>

Commanders don’t plan for an exfiltration or exploitation force because they do not intend on the reconnaissance force committing to direct-fire contact.<sup>12</sup> Confusion occurs when the commander intends on making direct-fire contact, mislabeling the mission as a zone recon because they do not understand the difference. The mission can also be intentionally mislabeled when commanders view their cavalry squadron as a combined-arms battalion rather than a reconnaissance asset.<sup>13</sup>

## Notes

<sup>1</sup> Army Doctrine Publication (ADP) 3-90, *Offense and Defense*, Washington, DC: U.S. Government Publishing Office, 2019.

<sup>2</sup> Ibid.

<sup>3</sup> Army Techniques Publication 3-20.96, *Cavalry Squadron*, Washington, DC: U.S. Government Publishing Office, 2016.

<sup>4</sup> CPT Kyle Hoisington, “Understanding Reconnaissance Missions Instead of Focusing on Reconnaissance Platforms,” *ARMOR*, July-September 2015; Center for Army Lessons-Learned, *CTC Trends FY19*, No. 20-10, Fort Leavenworth, KS: Department of the Army, 2020.

<sup>5</sup> Field Manual (FM) 3-98, *Reconnaissance and Security Operations*, Washington, DC: U.S. Government Publishing Office, 2015.

<sup>6</sup> ADP 3-90.

<sup>7</sup> Hoisington.

<sup>8</sup> FM 3-98.

<sup>9</sup> Hoisington; FM 3-98.

<sup>10</sup> FM 3-98.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Hoisington; *CTC Trends FY19*.



## The Information Domain and Social Media

by SGM Alexander E. Aguilastratt  
and SGM Matthew S. Updike

A form of asymmetric warfare is waged against the United States and its citizens daily across multiple venues and platforms without reaching the threshold or definition of open conflict.<sup>1</sup> That form of asymmetric warfare is disinformation.

Disinformation erodes trust and the ability to establish a society with effective institutions to serve and protect. As a result, it is conceivable to assume that disinformation and its social-media venues are corrosives affecting the information domain.

Much like the early stages of the

improvised-explosive devices (IEDs), disinformation presents the United States with a cost-effective, low-effort tactical problem with a strategic consequence manifested in national trust erosion. The U.S. Army faces the renewal of great-power competition with adversaries engaging in multiple domains, thus challenging the traditional definitions of war and peace and operating under the threshold that would warrant military action.<sup>2</sup>

A few years ago, Frank Hoffman identified the “weaponization” of social media as playing perfectly into the concept of hybrid warfare: “Hybrid warfare incorporates a range of

different modes of warfare, including conventional capabilities, irregular tactics and formations, terrorist acts, coercion and disorder,” he said.<sup>3</sup>

### Importance

The information domain offers adversaries the ability to engage the U.S. Army with digital IEDs and erode trust between our military and the American people. Social media is the preferred venue for foreign, domestic and proxy enemies to engage the Army remotely with minor consequences.

The information domain starts at the tactical level, and it is also a tactical commander’s responsibility to occupy

it or otherwise relinquish key terrain to nefarious actors. However, there is a lack of concise guidance about information and the aspects of cross-domain warfare. The result is the effect of “paralysis by analysis” and the consequent disregard of social media as a tactical system in the new information domain.

Active measures in the realm of social media include influencing others in a coercive way; disinformation; political-influence operations in what could be considered the tactical setting for the asymmetric gray zone; hybrid; or next-generation information warfare against the U.S. Army.

## Operational environment

Social media, as part of the information domain, fits perfectly as a tool to shape the information operational environment, coordinate efforts and erode trust by antagonizing below the threshold of conflict, wrote Sarah Jacobs Gamberini.

In past times, basic communication models included sender, receiver, transmission, medium and message as separate components; however, due to advances in technology, the information domain now adds the Internet, radio waves, satellite communications, wireless networks and social media to the previous media, said Robert Kolin-ski.<sup>4</sup>

As a result, the information domain will become the preferred operational environment by near-peer, extremist organizations and domestic threats that cannot match the U.S. Army’s kinetic capabilities.

### Example: ISIS in Mosul

When the Islamic State in Iraq and Syria (ISIS) invaded Northern Iraq in 2014, it only had about 15,000 militants who picked up weapons and vehicles from the previous extremist groups. However, after introducing its hashtag campaign #ALLEyesOnISIS, it gained an extensive network of passionate supporters and Twitter bots to lock down other trending hashtags for Arabic-speaking users.<sup>5</sup>

ISIS’ on-line tactics and mastery of the information domain recruited from

more than 100 countries and spread fear globally.

The information domain as an operational environment is now a contested battlespace where various actors with real-world goals such as ISIS could use the same tactics with relative simplicity. For example, ISIS’s top recruiter, Junaid Hussein, used the same tactics that Taylor Swift used to sell her records.

The acknowledgment of the changes in the character of warfare related to the information domain is evident not only to the military but also to corporations. Facebook, for example, is planning the creation of a “war room” to counter disinformation operations.<sup>6</sup>

Commanders at all levels deal with the challenges of the information domain, social media and their formations. Social media is the ideal platform for information/disinformation, on-line communities, nefarious actors, inundation and targeting, and less-than-honest techniques. For example, during the last Mexican elections, one-third of the on-line conversations were generated by bots.<sup>7</sup>

Social-media platforms are addictive by design. Notifications, for example, do not tell the user what the subject is about, thus creating a certain level of anxiety and the need for closure, appealing to emotions. Unfortunately our young generation of Soldiers is affected by this type of emotional targeting.

### Russia’s view

“Russia’s theory of the United States is that its diversity is its weakness. Russia is digging deeper into the preexisting fault lines of American society by distracting, dividing and weakening. We can expect the same [modus operandi] against the U.S. Army. Occupying the information domain with a clear, genuine and transparent message would help command teams protect their formations against social-media weaponization.” – Sarah Jacobs Gamberini

For example, in Chicago, 80 percent of school fights originate from on-line comments. Gangs and extremist-organization recruiters stir negative emotions such as anger to disenfranchise and absorb young recruits.

If units do not occupy and employ the information-domain operational environment, they risk enabling nefarious actors to target Soldiers, spread disinformation and operate with impunity.

## Speed and level of response

The need for a social-media presence as part of information-domain occupation is paramount for U.S. society and its symbiotic relationship of trust with its Army. One of the most efficient ways for commanders to occupy the information domain and counter disinformation is to practice consistent messaging, whether doctrine or science/fact-based.

As social media continues to evolve with visual venues, including China’s TikTok, it is essential to point out that the enemy uses artificial intelligence and algorithms to flood the virtual battlefield. As a result, reliable information must be treated as a defensive/ offensive weapon system and an area-denial tool against nefarious actors.

The most effective tool against nefarious actors is an educated and empowered population of Soldiers and leaders capable of identifying and discrediting disinformation attempts. The U.S. Army must recognize at echelon that social media can be used as a weapon of adverse effects; therefore, it must invest in social-media literacy and instill awareness of methods and goals of targeted campaigns by nefarious actors.

For example, Russia believes that the United States’ weakness is its diversity, so to counter this, the U.S. Army must show strength in its pluralism and pave the way to heal the divisions in our country by shielding our own culture.

When the Army acknowledges social media as part of the information domain and develops an effective strategy, it will deny nefarious actors crucial terrain in the information

## Vignette: Danger to public health / coronavirus disease-19 vaccine

Eight in 10 Internet users in the United States search for health information on-line, with 74 percent of that population active on social media. Therefore public-health issues such as coronavirus disease-19 present an ideal target for Russian social-media weaponization due to their divisive and emotional nature.

The anti-vaxxer movement, for example, promotes a passionate argument that vaccinations are unnecessary and dangerous.

The trend is fueled by deep mistrust for authority, thus encouraging misinformation. As a result, diseases such as measles (previously eradicated in the United States) have made their most remarkable comeback since 1992.

A continuation of this dangerous disinformation campaign could physically weaken the United States, as U.S. health institutions face a crisis of trust fueled by intentional and inadvertent lies.

environment and nullify one of GEN Valery Gerasimov's Russian new-generation-warfare pillars.

## Changes in technology

The U.S. Army's adversaries see information as a domain and all forms across platforms as potential venues of power ready to be weaponized. Near-peer threats also view all U.S. information-technology systems as vulnerabilities, according to Gamberini.

As information technology evolves, so do its platforms (using TikTok as an example). Technological advances enable nefarious actors to manipulate media with artificial intelligence-enabled "deep fakes," according to Gamberini. Tech companies are developing

methods to reveal such deep fakes and image alterations that create anger and negative public opinion.

Also, developers are working on their algorithms to counter those used by nefarious actors to discourage the practice of sharing misleading information based on the title alone. The algorithms will aid in creating a healthy level of skepticism, improving social-media literacy, wrote Gamberini.

Despite all advances in technology, the most important advance must occur within the human domain. The most effective tool to counter disinformation and divisionism is the educated and empowered U.S. Army, capable of discrediting disinformation and targeting efforts. In addition, the Army must inoculate its Soldiers against those who seek malign control of the information domain.

Command teams must invest in social-media literacy and instill awareness, methods and goals of targeted disinformation campaigns while measuring fissures in their information campaigns.

## Strategic communications and information advantage

The spread of misinformation and division is actually a "biohazard" that can spread throughout any formation if command teams do not effectively occupy the information domain. Command teams at echelon must define purpose with clarity and convey clear and concise messaging while considering the target audience and desired effects to counter or deny the enemy of crucial terrain to infect the information domain.

Social media is an effective platform to inform Soldiers and families while combating disinformation. Also, young Soldiers, officers and noncommissioned officers live in an era in which social media is essential in their lives.

Humanizing the narrative to create positive effects within formations is critical for countering the infection created by the weaponization of social media. Units that humanize their narrative can use the information domain as a means for Soldiers to:

- Know the unit's purpose;
- Communicate that purpose often and in different ways;

## Vignette: social-media reputation management and response

(10<sup>th</sup> Mountain Division shoot-house incident Feb. 21, 2021)

A bodycam video of Soldiers conducting live-fire close-quarters battle training displaying many safety violations began circulating on the Internet. It claimed that the Soldiers belonged to 10<sup>th</sup> Mountain Division. However, 10<sup>th</sup> Mountain staff determined the Soldiers were from the division but not the unit they belonged to or how long ago the training occurred.

**Measured response:** Within 24 hours, the video had gone viral. Through contact with the meme pages from the energy-drink rumor, CSM Mario O. Terenas, 10<sup>th</sup> Mountain's top enlisted Soldier, eventually determined the exact unit in the shoothouse and the training time. Rather than send out an old-fashioned press release, he addressed the allegations in a one-minute response video on all his social-media accounts.

He admitted that the Soldiers belonged to 10<sup>th</sup> Mountain Division and was saddened by what he saw. However, he assured the audience that was not the unit's standard and he would fix the problem.

**Results:** Terenas' video received an overwhelming amount of audience engagement. Users commended Terenas for owning up to the allegations instead of trying to hide from them. His video went viral almost immediately after being released. (152,000 views on Twitter, 86,000 Instagram views and 1,000 on Facebook.)

- Make it personal by creating informal feedback loops;
- Reinforce narrative with actions;
- Give purposed-based feedback; and
- Align behaviors with purpose.

## Pre, during and after-action plans

Effective social-media communication provides command teams a venue to exercise information-domain advantage and deny nefarious actors key terrain and avenues to infect formations. Also, command teams and staff must have the capability to engage in contingency operations to inform or respond to emergencies before, during and after crises.

Time is of the essence, especially if that time is during a crisis. You will likely use social media and on-line platforms as the first resource to react and to put out information. Because social media provides speed, reach and direct contact with audiences, it is a crucial tool to disseminate command information and provide a place to receive timely updates.

Develop the social-media strategy as part of your crisis-communication plan. Having a set strategy the team is comfortable with will help your unit better prepare to use and manage responses during a crisis.

## Command presence and talent management

Command teams must manage the information domain like any operational environment. Staff and senior-enlisted advisers can help the commander navigate the complex environment using experienced members within their formation (Soldiers and civilians) who are talented and adept to the social-media environment. A candid, genuine command presence can help leaders define their expectations, style and expectations to Soldiers and geographically displaced family members.

Also, subordinate commanders can emulate a solid and genuine social-media command presence. Defining leader expectations for the information domain is as important and comparable to the four rules of a gun range:

- Watch the muzzle and keep it pointed in a safe direction at all times;
- Treat every weapon system as if loaded at all times;
- Positively identify the target and the backdrop; and
- Keep your finger off the trigger until ready to engage.

Social media is an excellent medium for sharing information and reaching out to otherwise geographically displaced personnel; however, it is also a target-rich environment for nefarious actors. As a result, a strong command presence, coupled with action plans and expectations, is required to protect command integrity and safeguard Soldiers and families from the effects of disinformation and deliberate targeting.

## Threats

**Foreign.** Open-source intelligence indicates that foreign actors are engaging in covert information operations against the United States. Disinformation is not a new concept. Russia has a long history of seeking to project power and influence while playing to our potential technological and geopolitical handicaps, according to Gamberini.

Without the equivalent conventional might of the United States, Russia, China and other nations recognize our appetite for information. They use social media as a platform to exercise tactics of influence, coercion and the capability to control the narrative, thus manipulating a specific population's hearts and minds, Gamberini said.

The diverse, pluralistic and democratic nature of the United States makes it a target-rich environment of social-media-empowered Russian disinformation. As a result, the all-volunteer force composed of free citizens of a diverse nation offers the same opportunities for a country that has long fought to rebalance power, Gamberini said.

At the macro level, Russia has realized U.S. conventional superiority, with Gerasimov's doctrine revolving around information control as the key to victory. The Gerasimov Doctrine, or Russian new-generation warfare,

advocates simultaneous operation and control of the military, political, cyber and information domains, which can be accessed employing social media.<sup>8</sup>

Gerasimov also made the following statement about information technology: "Information technology is one of the most promising types of weapons to be used covertly not only against critically important informational infrastructures but also against the population of a country, directly influencing the condition of a state's national security."<sup>9</sup>

Russia operates under the concept that the distinction between war and peace no longer exists and uses misinformation to protect itself from a military response. In essence, once it has started, Russia must maintain momentum since it acknowledges that the United States' advantages in information technology will undermine Russian social, cultural and political institutions if pushed beyond the threshold of conflict, said Gamberini.

China also seeks to influence the American public, although its approach differs widely from Russia's tactics. "We believe that the Chinese state has employed a plethora of state-run media to exploit the openness of American democratic society in an effort to insert an intentionally distorted and biased narrative portraying a utopian view of the Chinese government and party," analyzed *Recorded Future*, <https://www.recordedfuture.com/china-social-media-operations>. "What distinguishes Russian and Chinese approaches are their tactics, strategic goals and efficacy."

A paper published by the Hoover Institution in November 2018 included findings from more than 30 of the West's preeminent China scholars, collaborating in a working group on China's influence operations abroad. The scholars concluded: "[T]his report details a range of more assertive and opaque 'sharp power' activities that China has stepped up within the United States in an increasingly active manner. These exploit the openness of our democratic society to challenge, and sometimes even undermine, core American freedoms, norms and laws. ... [T]hese activities seek to undermine

traditional American values (like the freedoms of press, assembly and religion) that Chinese leadership increasingly views as threatening to their own system of authoritarian rule.”

“The Russian state has used a broadly negative, combative, destabilizing and discordant influence operation because that type of campaign supports Russia’s strategic goals to undermine faith in democratic processes, support pro- Russian policies or preferred outcomes, and sow division within Western societies,” stated **Recorded Future** analysts. “Russia’s strategic goals require covert actions and are inherently disruptive, therefore the social-media influence techniques employed are secretive and disruptive as well.

“The Chinese state has a starkly different set of strategic goals, and as a result, Chinese state-run social-media influence operations use different techniques,” said **Recorded Future**. “[Chinese President] Xi Jinping has chosen to support China’s goal to exert greater influence on the current

international system by portraying the government in a positive light, arguing that China’s rise will be beneficial, cooperative and constructive for the global community. This goal requires a coordinated global message and technique, which presents a strong, confident and optimistic China.”

The relentless need to maintain the social media and disinformation continuum of operations under the destabilizing Gerasimov Doctrine enables Russian tactical commanders to conduct offensive cyber and information operations. In contrast, U.S. tactical commanders lack clear social-media guidance at the tactical level. It is fair to conclude that a Russian tactical commander is more empowered to conduct offensive information operations than a U.S. tactical-level commander due to the protection of several disinformation layers. As a result, Russian tactical-information units and their proxies occupy the proverbial “high ground” of the information domain.

**Modus operandi.** Western newspapers once described Russian President Vladimir Putin as “the cold-eyed ruler of Russia,” “a cold, calculating ... spy who sought to undermine freedom in the West.” With “his dark past, his sinister look,” he was “straight out of KGB central casting.”<sup>10</sup> Thus one could say that Putin is the spy who would be king. As such, he understood that once he embarked on the Gerasimov Doctrine, his methods for occupying the information domain would become predictable.

As a result, the need for relentless action at the tactical level would become the Russian apparatus’ cornerstone. Therefore Russia’s social-media exploitation method is predictable. They identify a contentious issue, employ bots and trolls on various social-media platforms to spread divisive messages, and amplify discord, wrote Gamberini.

In addition, a diverse U.S. Army, recruiting from a pluralistic society dealing with societal fissures and racial tension, creates opportunities for



Figure 1. “Nefarious actors” use social media to engage in information-domain warfare.

Russian disinformation attacks against the foundations of trust between the U.S. Army and the American people. In the case of creating friction against the U.S. Army, Russia employs tactics such as those used against African-Americans in advance of the 2016 election and the exploitation of the Black Lives Matter movement by flooding Twitter Hashtags and diluting legitimate concerns (Gamberini).

The need for a response and occupation of the information domain becomes prevalent when the Russian threat recognizes the need to identify, exploit and amplify U.S. political tensions, racial wounds and the promotion of health scams (anti-vaxxer movement) in a divisive and emotional manner.

**Domestic.** On-line social-media platforms are playing an increasingly important role in the radicalization processes of U.S. extremists. While U.S. extremists were slow to embrace social media, in recent years the number of individuals relying on these user-to-user platforms to disseminate extremist content and the facilitation of extremist relationships has grown exponentially. In fact, in 2016 alone, social media played a role in the radicalization processes of nearly 90 percent of the extremists in **Profiles of Individual Radicalization in the United States** data.

Social media exists for the extremist the same way it exists for the everyday user, neither evil nor benevolent. Social-media sites are simply a method extremists use to conduct a myriad of organizational functions.

Facebook, Twitter or YouTube are the most popular social-media sites today, but that does not mean they will stay on top. Tumblr, Linked In, Google+ and Instagram are all social-media sites growing in popularity.

Command teams and staff must acknowledge and keep abreast of new advances in social media.<sup>11</sup> However, it must not consume their time, nor

should they neglect professional distance, but rather consider social media as part of the information domain.

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## Notes

<sup>1</sup> Sarah Jacobs Gamberini, "Social Media Weaponization: The Biohazard of Russian Disinformation Campaigns," **Joint Force Quarterly**, 4<sup>th</sup> Quarter 2020.

<sup>2</sup> Ibid.

<sup>3</sup> Frank Hoffman, **Conflict in the 21<sup>st</sup> Century: The Rise of Hybrid Warfare**, Arlington, VA: Potomac Institute for Policy Studies, 2007, cited in Dr. Ofer Fridman, **The Danger of "Russian Hybrid Warfare,"** Cicero Foundation "great debate" paper, July 2017.

<sup>4</sup> Robert Kozloski, **The Information Domain as an Element of National Power**, Center for Contemporary Conflict, 2020.

<sup>5</sup> The University of Pennsylvania, **Why Social Media is the New Weapon in Modern Warfare**, Knowledge@Wharton, 2019.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Gamberini.

<sup>9</sup> Dr. Harold Orenstein and LTC (Retired) Timothy Thomas, "The Development of Military Strategy Under Contemporary Conditions: Tasks for Military Science," **Military Review**, November 2019.

<sup>10</sup> Greg McLaughlin, **Russia and the Media: The Makings of a New Cold War**, London: Pluto Press, 2020; retrieved from <http://www.jstor.org/stable/j.ct-vzsmtd1>.

<sup>11</sup> U.S. Air Force MAJ Joshua Close, **#Terror: Social Media and Extremism**, paper for graduate requirements, Air Command and Staff College, May 2014.

## ACRONYM QUICK-SCAN

**AWG** – Asymmetric Warfare Group  
**IED** – improvised explosive device  
**ISIS** – Islamic State in Iraq and Syria  
**TRADOC** – (U.S. Army) Training and Doctrine Command

## Survey of top social-media sites

“Movement” is the chief characteristic of social media. According to *Search Engine Journal*, “The top social media sites have seen plenty of movement in the last few years. ... Attention must be paid to where your demographic might be moving to.”

For those considering the best strategy for information operations on social media, “The best move is to consider which channels are right for your audience,” advised *Search Engine Journal*. “Test a presence on the relevant social media sites, and from results, strategically choose which ones to double down on.”

Russia and China have competing presences on social media. In fact, China has several of the top-ranked social-media sites – for example, WeChat, TikTok, Weibo, QQ and Qzone. Says *Statista*, “Most top-ranked social networks with more than 100 million users originated in the United States, but services like Chinese social networks WeChat, QQ or video-sharing app Douyin have also garnered mainstream appeal in their respective regions due to local context and content. Douyin’s popularity has led to the platform releasing an international version of its network: a little app called TikTok.”

The following table is offered as a launching place for further research as organizations build or expand their social-media strategy.

Assembled by *ARMOR* staff from *Smartblogger.com*, *Hootsuite*, *Statista* and *Search Engine Journal* (although more sources were surveyed). *Smartblogger.com* information posted Sept. 27, 2021. *Search Engine Journal* information posted June 22, 2021. *Statista* information as of Sept. 10, 2021. *Hootsuite Media* information current as of May 17, 2021.

**Table 1. Survey of top social-media sites for 2021 (based on monthly active users)**

Social-media site	Icon	Home country	Year founded	Characteristics	Ranking source
#1 Facebook		USA	2004	90% of daily active users live outside North America. Seven in 10 U.S. adults use Facebook. Now favored by an older user group.	All 4 sources cited place Facebook in the top spot.
#2 YouTube		USA (owned by Google)	2005	Dominates video content-sharing (long form). Strong user base across all age groups, including difficult-to-reach 65+ demographic. 38% of U.S. adults use platform. World’s second-largest search engine.	All 4 sources cited place YouTube as the runner-up to Facebook.
#3 Whatsapp		USA (owned by Facebook)	2009	Free messaging and voice-over-IP. Main means of Internet communication in multiple locations, including Latin America, Indian subcontinent and large parts of Europe and Africa.	3 sources. <i>Hootsuite</i> ranks app as #1, commenting “This might be news to a lot of North Americans, but WhatsApp is one of the world’s foremost social-media apps. ... Every day, 175 million users in 180 countries message one of the 50 million businesses on WhatsApp.”
#4 Facebook Messenger		USA (owned by Facebook)	2011	Standalone messaging app and platform. Text, voice or video chat. Messenger has allotted 24-hour window to respond to audience inquiries.	<i>Smartblogger.com</i> , <i>Hootsuite</i> Ranked #5 by <i>Statista</i> . Not listed in <i>Search Engine Journal</i> ’s list of its top 10 social-media sites and platforms for 2021.
#4 Instagram		USA (owned by Facebook)	2010	Video and photo-sharing social platform. Largest demographic is under-35 urban females with above-average income. Gen Z and Millennials have migrated here also, per <i>Search Engine Journal</i> . Content providers need to consistently post unique, high-quality images and videos.	<i>Search Engine Journal</i> , <i>Statista</i> Per <i>Search Engine Journal</i> : “If your target demographic is under 35, Instagram is a gold mine: 75% of 18-24-year-olds use Instagram, with 67% Generation Z and 57% Millennials using the app daily.” Ranked #5 by <i>Hootsuite</i> ; ranked #6 by <i>Smartblogger.com</i>
#5 WeChat (Weixin in China)		China (owned by Tencent, parent company of QQ and QZone)	2011	Dominant social network in China. Goes beyond messaging – users can video call, shop, use government services, call rideshares, play games, etc. According to one survey, 73% of respondents in China had used WeChat in the past month.  If your audience is <i>in or from</i> China – including tourists, students and expats – this app may be useful, but “approach with caution”: per Wikipedia, user activity on WeChat is analyzed, tracked and shared with Chinese authorities upon request as part of the mass surveillance network in China. WeChat censors politically sensitive	<i>Smartblogger.com</i> #6 on <i>Hootsuite</i> ’s and <i>Statista</i> ’s lists Not on <i>Search Engine Journal</i> ’s list of top 10, who says “Because American social media sites are restricted in China, the country has its own flourishing social ecology.”

				topics in China. Data transmitted by accounts registered outside China is surveilled, analyzed and used to build up censorship algorithms in China.	
#5 Tiktok		China	2017	<p>Bills itself as “leading destination for short-form mobile video.” For video up to 60 seconds. “Buzziest social media app,” per <i>Hootsuite</i>.</p> <p>Audience is young adults (Generation Z) looking for creative or visually appealing side to your brand.</p> <p>In the United States, 25% of audience is a teenager or younger. Those users are highly engaged, too; as of January 2021, time per user spent on TikTok exceeded that for Facebook.</p>	<p><i>Search Engine Journal</i>, who says “TikTok has seen the fastest growth of any social media platform. From launch only five years ago, the video-based platform is now fifth for most monthly active users.”</p> <p>#7 on <i>Statista</i>’s and <i>Smartblogger.com</i>’s lists; #8 on <i>Hootsuite</i> list</p>
#6 Snapchat		USA	2011	<p>Specializes in <i>ephemeral content</i> – media only accessible for short time. Users share image and video messages called “snaps,” which can be modified with stickers, text, filters and other effects.</p> <p>82% of users under 34. Most popular app for teens. Millennials or Gen Z also on this app. Not for older audiences.</p> <p>Platform has fun, laid-back vibe.</p>	<p><i>Search Engine Journal</i></p> <p>#12 on <i>Statista</i>’s list; #13 on <i>Hootsuite</i>’s and <i>Smartblogger.com</i>’s lists</p>
#7 Reddit		USA (owned by Conde Nast)	2005	<p>Social news aggregation, Web-content rating and discussion Website. Blend of content and community. Content is user-generated and includes written posts, discussions, photos, videos, and links to articles. Users often pose questions to the community (similar to Quora) or just browse for random stories.</p> <p><i>Search Engine Journal</i>’s advice: “However, be warned, Reddit is a fickle place and won’t tolerate blatant self-promotion. Tread lightly as you begin to navigate because if you get the tone wrong, commentators are quick to jump in and can trash a brand.”</p> <p>Will probably be able to find at least one subreddit (i.e., a niche on-line community devoted to a specific topic, like gaming or stock-picking) that attracts your target audience. However, this is not a platform for a hard-sell, branded content, or even influencer marketing.</p>	<p><i>Search Engine Journal</i></p> <p>#11 on <i>Smartblogger.com</i>’s list; #15 on <i>Statista</i>’s list; #17 on <i>Hootsuite</i>’s list</p>
#8 QQ		China	1999	<p>Designed as an answer to Israel’s ICQ in 1999, in 2021 QQ remains China’s second most-popular messaging app.</p> <p>Users can participate in group chats and send texts and audio messages. Live translation feature for up to 50 languages enables it to be used internationally. Platform popular with Gen Z. If audience is not in China, or they’re older and have a higher income, you’re better off with WeChat.</p> <p>Will need an account to use QQ’s blogging subplatform QZone.</p> <p>Per <i>Hootsuite</i>: “Both QQ and WeChat are owned by tech giant Tencent, but while WeChat has gained dominance, QQ has spent the last few years dropping in popularity. ... QQ’s desktop and mobile messaging attracts a consistently younger demographic than WeChat.”</p>	<p><i>Smartblogger.com, Statista</i></p> <p>#10 on <i>Hootsuite</i>’s list; not on <i>Search Engine’s Journal</i> list of top 10 sites</p>

#8 Pinterest		USA	2010	<p>Some of most popular content includes fashion, food, decor, wedding, workout and do-it-yourself-related pins. Anything with rich visuals can thrive on Pinterest.</p> <p>“People visit Pinterest for inspiration and to find and share new ideas.”</p> <p>81% of users are female, especially “Millennial moms.” 40% of new Pinterest signups are male.</p> <p>Per <i>Hootsuite</i>: “Pinterest has been experiencing notable user growth through the pandemic. For instance, their popularity outside of America was up 46% in 2020.”</p> <p><i>Smartblogger.com</i>’s caution: “Content must be visually amazing on this platform. If you’re not willing or able to invest in great images, then you’ll be wasting your time.”</p>	<p><i>Search Engine Journal</i></p> <p>#14 on <i>Statista</i>’s and <i>Smartblogger.com</i>’s lists; #16 on <i>Hootsuite</i>’s list</p>
#9 Twitter		USA	2006	<p>Microblogging and social-networking service. Posts (tweets) are short (280 characters maximum). Users can then like, comment on or retweet posts to followers. Twitter Polls allow users to ask followers a question with 4 answers to choose from; this is an easy way to engage your audience and get feedback on ideas. Hashtags, which were started on Twitter, can generate brand awareness and drive engagement.</p> <p>Biggest target is millennial males, living in urban areas, with above-average income.</p> <p>Per <i>Hootsuite</i>: “Given its fairly small user base, Twitter has impressive name recognition – 90% of Americans have heard of Twitter, though only 21% use it. That, combined with an active population of politicians, journalists, celebrities and comedians, keeps the platform punching above its weight, especially in North America (and Japan, where it’s the #1 platform).”</p>	<p><i>Search Engine Journal</i></p> <p>#15 on <i>Smartblogger.com</i>’s list; #16 on <i>Statista</i>’s list; #18 on <i>Hootsuite</i>’s list</p>
#9 Sina Weibo (Weibo in China)		China	2009	<p>Microblogging social network, called China’s answer to Twitter. In addition to publishing text-based updates (up to 2,000 characters), users can share music, videos and images; comment, follow, private-message, search and use @Usernames to tag others; and can post images (9 max per post) and create Stories.</p> <p>Target audience: Chinese web users.</p> <p>Caution: Foreign companies pay up to \$2,000 USD to register for an official account.</p>	<p><i>Smartblogger.com</i></p> <p>#11 on <i>Statista</i>’s and <i>Hootsuite</i>’s lists; not on <i>Search Engine Journal</i>’s top 10</p>
#9 Douyin		China	2016	<p>Before Chinese tech giant ByteDance created TikTok, it created Douyin. The Chinese version of the short-video app is almost as popular as the international version (TikTok) in terms of user numbers alone.</p> <p>Audience: youth in China.</p> <p>Hosts variety of short-form user videos from genres like dance, comedy and education, with durations from 15 seconds to 3 minutes.</p> <p>TikTok and Douyin have almost the same user interface but no access to each other’s content. Their servers are each based in the market where the respective app is available. The two products are similar, but features are not identical. Douyin includes an in-video search feature that can search by people’s faces for more videos of them and</p>	<p><i>Statista</i>’s and <i>Hootsuite</i>’s lists</p> <p>Not on <i>Smartblogger.com</i>’s or <i>Search Engine Journal</i>’s lists of top 10</p>

				other features such as buying, booking hotels and making geotagged reviews.	
#10 QZone		China	2005	<p>Social-networking Website; is bonded service to QQ. Allows users to write blogs, keep diaries, share photos, listen to music, play on-line games, shop, date and watch videos. Users can set background and select accessories.</p> <p>QZone's user base leans heavily toward youth living in the smaller, less sophisticated cities and towns of China. If you're going after university students or working professionals, consider WeChat or Sina Weibo. An estimated 97% (481.9 million) of its users are in China.</p>	<p><b>Smartblogger.com</b> #14 on <b>Hootsuite's</b> list; not on <b>Statista's</b> or <b>Search Engine Journal's</b> list of top 10</p>
#10 Linked In		USA (owned by Microsoft)	2003	<p>Focused social-media platform catering to network of professionals and decision-makers. Most users are in senior positions. 44% of users have an income above the national median. More than 50% of Americans with a college degree use LinkedIn.</p>	<p><b>Search Engine Journal</b> #7 on <b>Hootsuite's</b> list; not on <b>Statista's</b> or <b>Smartblogger.com's</b> lists</p>
#10 Telegram		Russia	2013	<p>Messaging app that allows large group chats (up to 200,000 people) and public one-to-many channels.</p> <p>Bills itself as a more privacy-focused alternative to Facebook's WhatsApp or Facebook Messenger.</p>	<p><b>Statista</b> #12 on <b>Hootsuite's</b> list; not on <b>Search Engine Journal's</b> or <b>Smartblogger.com's</b> lists</p>
#12 Kuaishou (Kwai outside of China)		China	2011	<p>Short-video sharing and live-streaming app. <b>Per Smartblogger.com:</b> "Users share clips of stunts and pranks and live streams of video gameplay. Kuaishou's algorithm is designed for inclusivity, ensuring more visibility for a wider range of user-generated content. This has opened the way for people from China's rural regions to share their lifeways while generating extra income, which they do by promoting their businesses or linking out to eCommerce platforms."</p> <p>Site has carved out niche in subset of social commerce that hasn't yet hit peak popularity in the West: live commerce. Livestreaming is highly popular on Kwai, as is social gifting. Kwai allows users to send virtual gifts to their favorite influencers, as well as buy products in-app from those influencers as they livestream. International brands like Volkswagen, the NBA and Cristiano Ronaldo are all active on the platform.</p> <p>Main demographic is Gen Z in China's smaller cities and rural regions. If your Chinese-speaking audience is more mature and sophisticated, you may have better luck with WeChat.</p>	<p><b>Smartblogger.com</b> #13 on <b>Statista's</b> list; #15 on <b>Hootsuite's</b> list; not on <b>Search Engine Journal's</b> list of top 10</p>
#17 Quora		USA	2009	<p>Question-and-answer Website where questions are answered by community and answers voted on. Offers advertising options including "promoted answers." There are also plenty of opportunities for sharing content (repurposing blog posts, for instance) and thought leadership.</p>	<p><b>Statista</b> #19 on <b>Hootsuite's</b> list</p>
#20 VKontakte (VK)		Russia	2007	<p>Called "Russia's Facebook clone"; only YouTube is more popular in Russia. Most of VK's users are millennials, and <b>Statista</b> estimates that half of them live in St Petersburg. For communication with Russian speakers, VK is key for the whole on-line funnel: everything from brand awareness to e-commerce.</p>	<p><b>Hootsuite</b> Not included on other 3 sources' lists</p>

# Combat-Zone Turnover – A Case Study in Success: Lessons-Learned from Forward Operating Base Bucca

by COL (Retired) Bill Edwards

Military operations are inherently tied to planning. It is a core function of any tasked military mission designed to give the unit a greater understanding of the problem and provide various ways to approach a solution. Establishing a workable framework is needed during the infant stages of a mission to “build the team.” Then tremendous effort by the commander and staff is needed to stay focused and remain diligent, especially in austere, dangerous environments. Remaining agile is key.

In 2010, the 3<sup>rd</sup> Brigade Special-Troops Battalion (BSTB), 3<sup>rd</sup> Brigade Combat Team (BCT), 4<sup>th</sup> Infantry Division, found itself tapped for just such a mission in Iraq. I was its commander.

Operation Iraqi Freedom (OIF) was undergoing significant transition as the environment and landscape of combat operations for the United States and coalition forces began to shift to the newly established Iraqi government. Subtle shifts in the operational environments across the country, realities on the ground and more than seven years of combat operations were beginning to wear on the patience of the U.S. public and the pace/operations tempo of the U.S. Army.

The visible transfer of responsibility for the country and combat operations was ongoing as Iraq established all major elements of government to take ownership of its country while simultaneously generating an army under the supervision of coalition forces. It was the beginning of returning Iraq to civil authority.

## Beginning situation

The seeds for the transition of civil authority to the Iraqi government had been planted and were beginning to sprout as U.S. forces continued to arrive in the Iraqi theater. BCTs were assuming responsibility for provinces and landmasses previously held by much larger units. In essence, this was another indication of the shift in commitment/change and early indications of an exit strategy.

In February 2010, it was decided that Camps Freddy and Bucca, now renamed as Forward Operating Base (FOB) Bucca, would be the first large-base transfer to the Iraqi government. To meet the expectations of U.S. military leadership, it was necessary to create a formal base-transfer process. This began by conducting a pre-deployment site survey to gain an understanding of the operational environment.

Ultimately the FOB Bucca transfer was executed in 10 steps. It showed a methodological and responsible approach to transitioning a large base in a combat zone. This was not rocket science, but it was a mission that required attention to detail, energy at all levels, agility and an understanding of the environment, including local Iraqi cultural norms.

Camp Bucca was a detention

facility maintained by the U.S. military in the vicinity of Umm Qasr, Iraq. The facility was initially called Camp Freddy and was used by British forces to hold Iraqi prisoners of war. After being taken over by the U.S. military in April 2003, it was renamed after Ronald Bucca, a Soldier with 800<sup>th</sup> Military Police Brigade and a New York City fire marshal, who died in the Sept. 11, 2001, attacks. It was the largest detainment facility for captured combatants in the country.

After the Abu Ghraib prisoner-abuse scandal, many detainees from Abu Ghraib were transferred to Camp Bucca. After a substantial turnover in the chain of command at Camp Bucca and substantial amendments to camp policy, the U.S. military held up Camp Bucca as an example of how a model detention facility should be run.

In September 2009, the facility saw its



**Figure 1.** Families wait at the welcome center April 10, 2008, to schedule a visit to see their relatives who were being held at the theater internment facility at Camp Bucca, Iraq. Within two years FOB Bucca would be transferred to Iraqi authority. (U.S. Army photo by SPC Amie McMillan)

last detainee transferred to another facility; this was another sign of transition as detainees moved into the Iraqi legal system and were housed in holding facilities outside of U.S. jurisdiction.

## Framework begins

As units conducted transfer-of-authority (ToA) responsibilities, the formal mission was assigned to 3<sup>rd</sup> BSTB. We developed the following framework to execute the transfer of FOB Bucca to the Iraqi government. It is simple, functional and will stand the test of time.

### Step 1:

- Plan a phased-approach with set milestones. Coordinate operations and logistics simultaneously.
- Maintain security throughout the process and continue to conduct daily combat operations to secure the surrounding area and the FOB.

Establishing phases and milestones helps guide staff regarding actions linked to the calendar. In this case, we set a timeframe for transfer but not a definitive date. Our goal was December 2010. Also, maintaining vigilance concerning security was critical. Conducting transition during combat operations always creates opportunity for enemy action; therefore maintaining security is paramount throughout transfer operations. The perception and reality that the facility is still a hardened target is a key detriment to adverse action. Security-force operations remain until the official transfer is complete and a ToA of forces has taken place.

The plan and milestone-development activities provide the unit with “time and space” to execute the mission to the desired endstate. In this example, my team consisted of the BCT support staff, 1<sup>st</sup> Infantry Division key leaders, contract personnel, contract-officer’s representatives (CORs), Multinational Force-Iraq (MNF-I) key staff, partner security forces, local nationals and theater-support units in Kuwait.

Step 1 is about setting conditions and developing a plan.

**Step 2:** Establish and identify internal and external stakeholders.

This is the next logical step in the process as you “build your team” for execution. The task of identifying all stakeholders is hard, and you will find that adding to this list is accomplished over time. The initial set of stakeholders will get the mission moving forward, but you have to be prepared for more support from organizations you will not identify in the beginning. Remain flexible.

Identify the internal assets first; this is the easy step. Solidifying the external assets is not as easy, especially within a foreign government that is beginning to build its own infrastructure, departments and agencies. The commander’s efforts require energy and stamina because keeping the mission moving forward is leadership business.

One of the key stakeholders for the transfer of Camp Bucca was the Iraqi governor of Basra province. I met with him to establish the final terms by which he would assume responsibility for the FOB. Specifically, this pertained to the importance of the wastewater and water-purification facilities. Also discussed were the timing and support the unit would need from officials within his team. During this negotiation, the final details were agreed upon and the date for transfer was set.

**Step 3:** Set a battle rhythm (a cadence of weekly meetings) or in-progress review schedule around the transfer tasks/milestones, and organize weekly milestone check-ins with all stakeholders.

Leading is all about people, and a leader needs to be involved in the day-to-day operations of the plan. Setting a battle rhythm is an important function because it not only holds the team accountable, but it allows the commander to see progress and to make adjustments where required.

Once the battle rhythm is established, a joint effort between the operations lead and the logistics lead needs to take shape to form the milestones of events. Milestones not only provide the staff and on-ground personnel to execute the task, but it provides predictability to support staff and personnel providing the service. They are directly related to equipment use and retrograde; they are also linked to

end-service notices and planned personnel departures.

**Step 4:** Identify key-leader engagements (KLEs) and work with the right decision-makers.

This specifically applied to the Iraqi government and the governor of Basra’s province. KLEs come in many forms, but in the case of this transfer, the critical link for the commander was with the governor of Basra’s province. In this case, the commander met with the governor once or twice a month to solidify transfer plans. It’s also a good time to articulate the timeframe and expectations. This includes stay-behind life systems and major facilities.

It is important to note that KLEs are negotiations. During this transfer, the negotiations went on for 10 months and were not always a smooth process.

Understanding cultural norms and working within cultural understandings is very important and necessary. Leveraging the concepts of power, status and influence in the cultural setting is critical. Know when to execute each. This is senior-leader business and based on environmental conditions. Plan and coordinate a strategic-communications plan with the higher headquarters two levels up. Maintain a stable interpreter throughout the process. This is necessary to ensure each meeting is a build or follow-up from the last and there is no need to play catch-up on agreements, arrangements or past exchanges.

Since this was a new mission and the first large-base transfer, selecting a leader with maturity and patience was key. The level of visibility and engagement is high.

**Step 5:** Understand contract details and coordinate contract closeouts under the milestone glidepath with contracting office representatives.

The U.S. Army doesn’t go to war without a strong, deep logistics tail, which includes contract companies and personnel. In fact, the contract footprint is often larger than the combat force assigned to the area. This fact emphasizes the need to understand this aspect of base-support functions.

A good lesson in this case involved the base-service support. Dining facilities, laundry services, carpentry, metal-work, etc. ... all existed under contracts led by CORs, which were managed out of Baghdad. This was a lesson to identify those stakeholders who would not necessarily be on the first team in, but at the end, they were essential to the transfer. The commander needs to engage the CORs and the senior representatives to fence funding and contract end-of-service rules.

**Step 6:** Begin the process of moving people out of the area of operations.

Start with identified non-essential personnel. Determine essential contractors, civilians, local nationals and third-country nationals, and phase their departure in coordination with established milestones and end-of-services. One of the most important functions of a transfer is to keep people at the forefront of your mind. It is easy to get consumed by the daily tasks of moving equipment and ending services. People are key to these functions, and providing predictability to them is important.

Also, giving each person safe movement options ensures that the service they provide will be executed to high standards up to the day they end. Taking care of people in combat zones is a priority and requires command-level experience and diligence. Engaging each contract company and its internal-support functions will aid in this process. This is all about collaboration and relationship-building.

**Step 7:**

- Identify equipment and services and methodically move and close in coordination with established milestones.
- Keep all U.S. equipment in the logistics system and enter it back into the supply chain for redistribution. Leave nothing that could be used against our forces.

In this case, it was vitally important to return functional equipment to the logistical system so it could be redistributed in theater where there were identified needs. This action requires the BCT's senior logistical officer to support. Messages need to be generated to units across the theater detailing equipment that is available and when it can be transported.

We spent an enormous amount of time moving equipment to support units in every part of the country. We moved all concrete barriers, generators, tools, etc., when requested. It was estimated that by the close of this mission we had saved more than \$35 million worth of U.S. government equipment. This was a significant lesson-learned and a model for future base transfers.

**Step 8:** Plan for secure and non-secure communications degradation.

Keep critical lines of communication open until the end of the official transfer ceremony, then move to tactical communications. As obvious as this may seem, it is something that is quite often overlooked. Make it a point to

keep the communications team on the FOB until the end. I ensured the right teammates executed this mission. In combat, communications are equally as important as combat power.

**Step 9:** Keep security in place and conduct a relief-in-place (RIP) with the transfer partner.

In this case, we were moving a contracted Ugandan guard force and replacing it with an Iraqi navy/marine unit. Security and military presence is the absolute last element to leave the area. This is a task that U.S. military units understand and rehearse.

In this environment, the key was to conduct an RIP with a foreign military unit – in essence, passing critical posts and functions to a unit you don't normally work with. The RIP takes place simultaneously with the transfer ceremony to project an illusion of seamless change of responsibility. This was all under the supervision of senior noncommissioned officers from the battalion and contract supervisors.

**Step 10:**

- Coordinate and confirm the official transfer.
- Ensure all stakeholders are informed and invited.
- Finalize administrative tasks.
- Plan for a transfer ceremony to serve as an official change of responsibility.

Believe it or not, this is a mission that requires extensive coordination. In our case, we conducted an official transfer ceremony that included Iraqi military units, government officials, 1<sup>st</sup> Infantry Division and 3<sup>rd</sup> BCT leadership. We also included the local population, including a school choir from the area. We conducted an official transfer of national flags and held a small reception after the ceremony.

At this time, the FOB was a shell of its original structure, and we accomplished the original mission order in the timeframe designated. All that remained on the FOB was equipment directed by MNF-I as a life-system necessity and the last military personnel. After the ceremony, the remaining military element departed for a nearby U.S. installation. This step was all about the security, physical transfer, symbolism and successful



**Figure 2.** The author cases the colors at Camp Bucca to transfer authority to the Iraqis.

end-of-mission. Keep that in mind as you prepare for this final action.

## Key lessons-learned

Since this was the first transfer of a large base in theater, a template for how to accomplish the transfer mission had not been written. Therefore, the BSTB worked diligently to set conditions for a successful effort using the preceding 10-step framework. The 3<sup>rd</sup> BSTB's ToA mission was accomplished Dec. 29, 2010.

We safely, securely and peacefully transferred the FOB and directed the transfer of the MNF-I life-system end items to the government of Basra Province. This included fully functioning wastewater and water-purification facilities, both multi-million dollar facilities designed and constructed by the U.S. Army Corps of Engineers. Ultimately these facilities became a great asset to the Iraqi people of the region, including the small towns of Umm Qasr and Safwan.

Following are the key lessons we learned along the way:

- Develop a plan with all key stakeholders. Nurture team buy-in and build confidence for success. Sequence the transfer in a thoughtful and responsible manner. Don't rush to failure.
- Lead from the front. This type of mission is senior-leader business. Be visible, accessible, energetic and supportive.
- Trust your team and support their efforts. Build synergy.

- Stay vigilant. Understand the operational environment. Know your enemy. Security is paramount in this type of environment.
- Understand the concepts of power, status and influence in a different cultural environment. Know when to execute each.
- Build in a strategic-communications plan with the higher headquarters two levels up.
- Plan, coordinate and execute KLEs on a routine basis. Building relationships is senior-leader business.
- Remain agile. No plan survives the line of departure, especially in a combat zone.

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*operations and security of two large FOBs in Dhi Qar and Basra provinces. His military schooling includes Armor Officer Basic Course, Military Intelligence Transition and Advanced Courses, Military Counterintelligence Course, Military Intelligence Combating Terrorism Course and U.S. Army Command and General Staff College. COL Edwards has a bachelor's of arts degree from San Diego State University in English; a master's of science degree in personnel management/administration from Central Michigan University and a master's of arts degree in national security and strategic studies from U.S. Naval War College. His civilian education also includes Duke University's Fuqua School of Business Executive Leadership Course and Harvard University's Kennedy School of Government Executive Negotiations Course. COL Edwards' awards and honors include the Bronze Star Medal (one oak-leaf cluster), Defense Superior Service Medal, Legion of Merit, Defense Meritorious Service Medal (one oak-leaf cluster) and Meritorious Service Medal (five oak-leaf clusters).*

### ACRONYM QUICK-SCAN

**BCT** – brigade combat team  
**BSTB** – brigade special-troops battalion  
**COR** – contracting-officer's representative  
**FOB** – forward operating base  
**KLE** – key-leader engagement  
**MNF-I** – Multinational Force-Iraq  
**OIF** – Operation Iraqi Freedom  
**RIP** – relief-in-place  
**ToA** – transfer of authority

## Unit background

The brigade special-troops battalion (BSTB) was conceived during Operations Iraqi Freedom (OIF) and Enduring Freedom to provide the brigade combat team (BCT) with a lieutenant-colonel-led organization specifically focused as the force multiplier for the combat-arms battalions (CABs) within the BCT. The unit was organized around all the low-density military-occupation specialty skills needed for a BCT to function. It was not designed for split-base operations.

In the past, these organizations were assigned separate companies, sometimes with a headquarters outside the BCT garrison footprint. This provided a challenge for the BCT because there was no direct

senior leader with responsibility for each company. By normal organization, the unit is assigned an intelligence company, a communications company, a military-police platoon, a battalion headquarters company and a brigade headquarters company. It is designed to support all BCT operations enabling the CABs to accomplish their mission.

During OIF the BSTB became an agile fighting force concerned with transition and operational-environment needs. It had to reorganize to bring on more combat power to support the overall BCT mission and the expanded area of operations. This was a mission that was unique by any stretch of the imagination.

The BSTB also became an operational-environment owner in the same manner as

the BCT's infantry, armor and field-artillery battalions. The BSTB assumed responsibility for multiple forward operating bases and outlying security outposts in 12 locations across an area of operations the size of Kentucky. This required the BSTB to grow to eight companies, adding infantry, armor, logistics and military police to the overall structure. By the time this task-organization was complete, the BSTB had nearly 800 personnel, and it was organized for combat operations.

## Acronym Quick-Scan

**BCT** – brigade combat team  
**BSTB** – brigade special-troops battalion  
**CAB** – combat-arms battalion  
**OIF** – Operation Iraqi Freedom

# The Chief's Toolbox: The Art and Methods of Leading a Productive Staff

by COL Andy Morgado

Army Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*, identifies the chief of staff as the commander's principal assistant responsible for coordinating and directing the work of the staff, and for establishing and monitoring the battle rhythm.<sup>1</sup> As in most doctrinal manuals, the science is often clear, but the art of application sometimes leaves much to the imagination. This is clearly my perception of the chief of staff position, a role I performed at the two- and three-star level commands (a division and field army). I also served as assistant to the chief of staff at a four-star major command.

The chief of staff position is the fulcrum or nexus of action on the staff, empowered to translate the commander's directions and intent into action and achieve results. Doctrine assigns roles and responsibilities, but the practical means of governing action, processing information and appreciating the context for action required at any level of command lack precise definition. This article serves as a practitioner's guide for chiefs of staff and executive officers who must interpret doctrine and employ the resources available to accomplish the mission. This is simply one practitioner's perspective and is given with the hope that others may learn from the

trials, errors and successes of another to apply to their given circumstances.

## Role of integration

The chief of staff's role is primarily one of integration. The chief of staff brings multiple people, tasks, efforts and functions together to solve problems and produce results.

The commander is ultimately responsible for organizing and training the staff, driving the operations process, building and maintaining situational understanding and solving problems.<sup>2</sup> However, the chief of staff is the person who brings it all together, finding the ways and means to attain the desired ends. Doctrine provides many

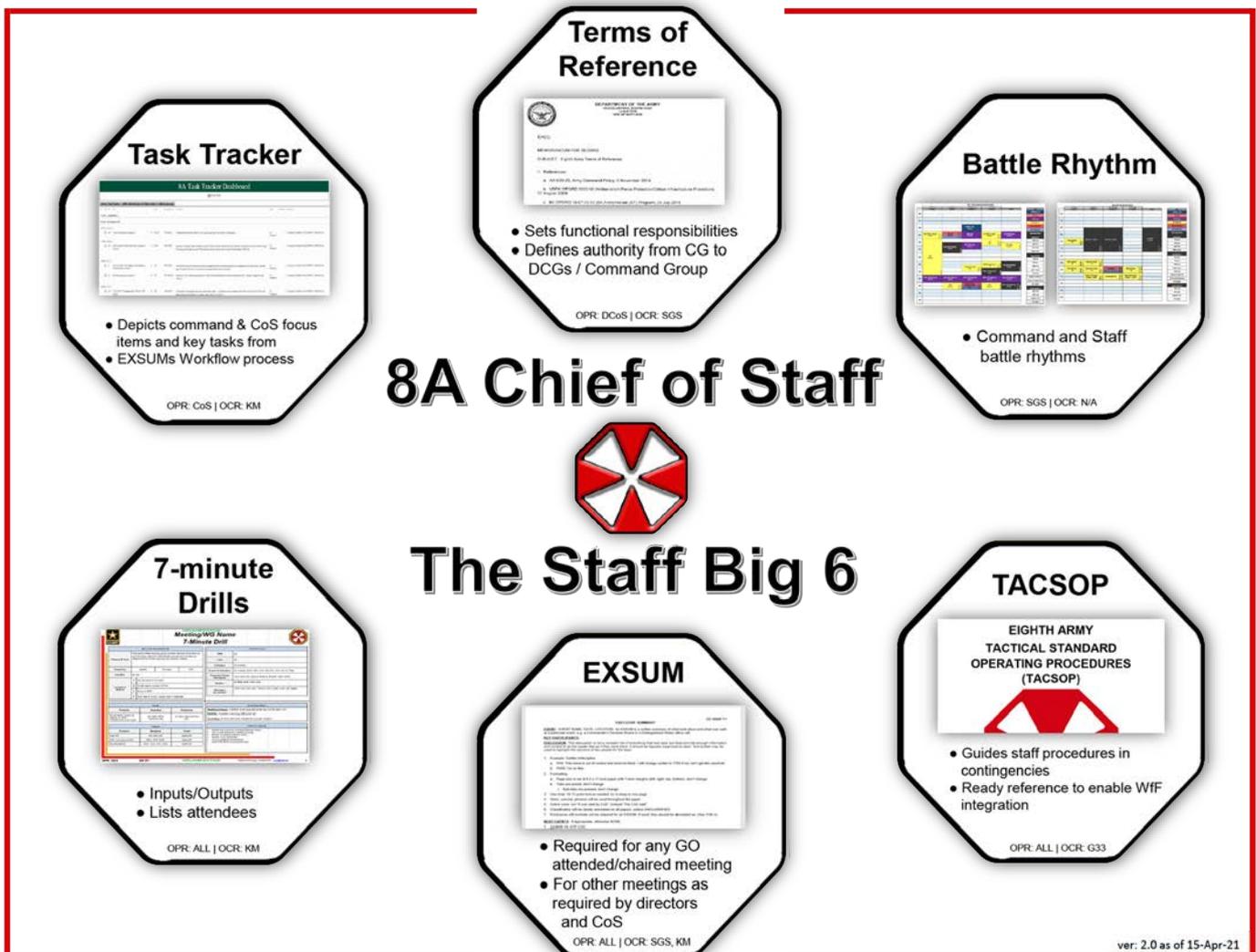


Figure 1. Eighth Army staff employ six common tools to help regulate headquarters actions and processes.

well-defined processes to help the commander and staff meet these responsibilities. This includes the military decision-making process, intelligence preparation of the battlefield, the targeting process, risk management and knowledge management.<sup>3</sup>

The staff must manage and synchronize each of these discrete processes in a manner that provides the commander with timely and relevant information to make decisions. These processes must further integrate into a system of command and control. This includes how the commander issues orders and guidance, and how subordinates provide feedback. The commander establishes “just enough” control to affect essential coordination to allow subordinates leeway in accomplishing the mission.<sup>4</sup> The commander must also establish an “arrangement of people, processes, networks and command posts.”<sup>5</sup>

Again, the true challenge for the chief of staff is combining these multiple functions into a comprehensive system. The chief of staff must often “read between the lines,” defining specified and implied tasks and overall intent. The chief of staff must also understand that not only must he or she support the commander, but also must enable the operations of subordinate units. The chief of staff must also inform and integrate higher headquarters’ and adjacent organizations’ actions. In the end, the chief of staff must lead people and manage processes that bring multiple systems together into a cohesive whole.

Through much trial and error, I found a core of functions or tools that help bring these multiple strands of responsibilities into a manageable system. They are the chief of staff’s “Big 6.” These six tools aid the chief of staff in meeting the commander’s and staff’s needs. They are (1) terms of reference (ToRs); (2) standing operating procedures (SOPs); (3) battle rhythm; (4) seven-minute drills; (5) task list; and (6) executive summaries (EX-SUMS). All these tools help the chief of staff manage work flow, modulate the decision tempo, receive and give guidance, and allow commanders and staffs to plan, prepare and execute the commander’s vision. These tools

account for people, processes and organizations that must come together to achieve results.

## It starts with people

The process of organizing a staff and employing the tools starts with people. Defining a person’s role and establishing a basis for action are the start points for effective administration.

A ToR document is a means to create a common understanding on the latitude for action afforded to each member of the team. Commanders cannot exercise command and control alone.<sup>6</sup> The ToR is a means by which a commander delegates authority without absolving the ultimate responsibility for a decision or action.

Establishing clear roles and responsibilities is also one of a leader’s essential tasks in Army team building.<sup>7</sup> Setting clear boundaries or zones of action in a clear, concise way empowers individuals within their sphere and creates efficiencies. A commander, through the chief of staff, creates a stable structure of delegation that, despite any changes or turbulence, builds continuity with this basic structure.

A good ToR spells out zones of action and responsibilities, defines relationships and, most importantly, delineates decision-making authority. The ToR, an act of delegation, clearly articulates the scope and degree of delegated powers. Particularly in a large headquarters, there is always too much work for the commander to do. Definitively assigning that responsibility from the outset saves time and organizational energy.

The ToR establishes “who” can act and in what sphere; the SOP specifies the “how.” A staff’s reaction to an SOP usually falls into one of two categories: they ignore it or give it scant attention. A staff will work frantically to create an SOP to pass the next inspection but then soon discard it when the short-term requirement passes away.

The much-maligned SOP is often an item to have and not use. Fundamentally the problem is one of construction and design. It’s not that SOPs are without value. When a staff creates an SOP in haste or with an ill-defined

scope and purpose, the resulting construction is also poor. They end up being massive tomes, fit more for propping open a door or window than being put into use. However, SOPs are not only essential, but when properly constructed, they are an effective tool for efficiency and continuity.

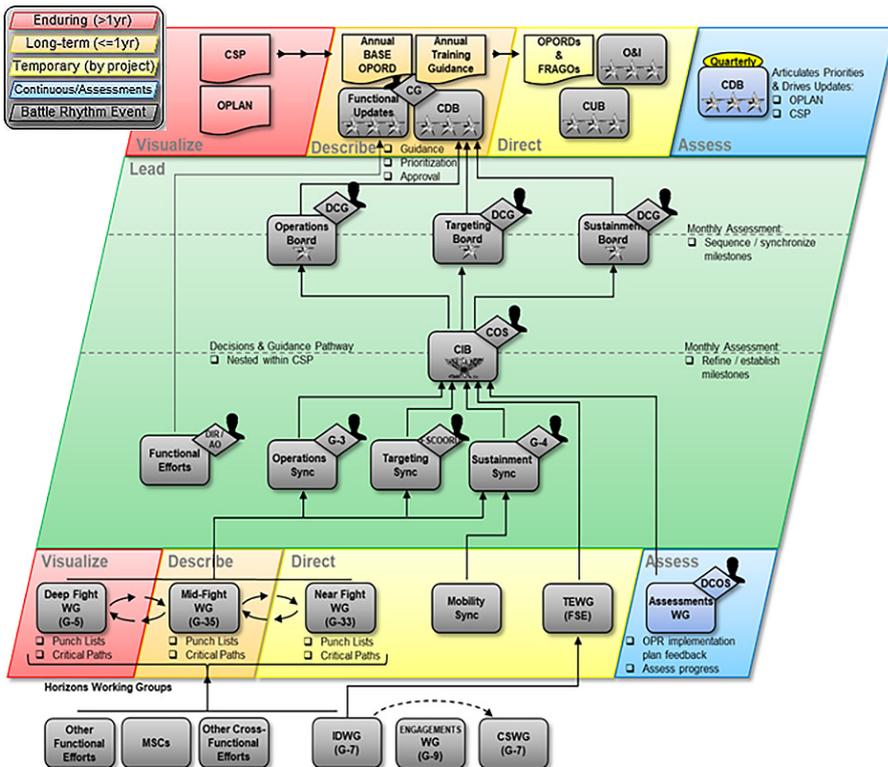
With this in mind, SOPs should focus on business rules and set procedural steps to guide the uninitiated and casual practitioners on how tasks get done. Effective SOPs use checklists and flow charts instead of dense text. SOPs work when they are simple, easy-to-read and written without technical jargon. A good SOP takes time to build, but it’s an investment in time at the front end that creates many efficiencies later.

Time management and decision flow are at the heart of the third tool: the battle rhythm. Arguably, the battle rhythm is the most important of all the chief of staff’s tools. The battle rhythm “provides structure for managing a headquarters’ most important internal resource: the commander’s and staff’s time.”<sup>8</sup>

A battle rhythm is a deliberate daily schedule to make the best use of available time. It helps synchronize headquarters activities horizontally and vertically. A good battle rhythm facilitates commander and staff interaction, helps create shared understanding inside and outside the headquarters, and sets a routine for coordination and interaction.<sup>9</sup> The battle rhythm ultimately manages the organization’s workflow by setting expectations and tempo.

A chief must ensure the battle rhythm meets the commander’s decision-making style and that it is nested with higher headquarters’ information requirements when establishing the unit battle rhythm. It must not only allocate time for presentation and decision, but it must also ensure there’s time for the staff to do analysis and “real work.”<sup>10</sup>

The battle rhythm has to be flexible, but a chief of staff must tread carefully when contemplating *ad hoc* or spontaneous adjustments. Shifts in the rhythm may have larger, more damaging impacts on subordinate



**Figure 2. The battle rhythm supports a clear, critical path to decisions.**

commands. Every event on the battle rhythm must have a clear purpose and a deliverable. It must have clear inputs and outputs. Thus, the battle rhythm's close companion and accompanying tool that assists in meeting the input and output criteria is the seven-minute drill.

The seven-minute drill is a concise "how-to" and content guide to aid staff officers in organizing, running and producing the desired results of a battle-rhythm meeting. A seven-minute drill exists for each item on the battle rhythm. Every battle rhythm must be connected in a decision-making pathway or chain.

Each seven-minute drill describes how a given meeting fits into the overall scheme. It must describe what comes before it and what its outputs must feed. It also must clearly state who must contribute, in what sequence and to what end. A good seven-minute drill designates a lead, provides an agenda, specifies what staff sections or leaders must be present and sets the frequency of meeting. Most importantly, the battle rhythm and seven-minute drill, working in concert, identify the critical path for staff members, leaders and subordinates to garner a decision from the appropriate

leader or commander.

The ToR and battle rhythm provide a pathway for decisions when taken together. Once a leader or commander makes a decision, it must be communicated. Staffs communicate most decisions via an order, but many decisions made in the planning process do not lend themselves well to publication in an order. To capture these outcomes, staffs must publish results in a routine way. Publishing an EXSUM is a simple and effective means of dissemination.

Reporting the outcome of a meeting through an EXSUM is a key enabler in the staff process. Along the decision pathway, the commander, his subordinate leaders and staff interact in multiple ways. The most common interaction is when the commander or subordinate leader gives or receives guidance. The recommended plan or course of action changes or undergoes revision in this dialogue.

Preferably, every activity on the battle rhythm is captured by an attentive staff member and published to the entire staff and subordinate commands via an EXSUM. This summary captures the key points of the engagement, decisions made, requests for information

and due-outs. These summaries are then fed into the headquarters' knowledge-management system, where the staff views and processes them. The EXSUM provides a record of action and decision, a base of knowledge to enable follow-on action.

In the daily course of operations, not all guidance or directives fit neatly into the command's decision pathway. Therefore, a commander and staff frequently identify problems, initiatives or opportunities that require more study or analysis before the commander decides to take more definitive action. The commander will issue guidance and tasks in any venue.

A staff must be able to record these tasks, assign responsibility, establish a suspense and provide feedback to the commander. A consolidated command task list is a means to capture and follow through on these directives. The chief of staff is uniquely suited to help define the task and identify which staff section has the required expertise. The chief should also determine what other staff entities may have a supporting role, assign a suspense, prioritize effort and establish the amount of effort to apply to the given task. Assigning a staff lead is also not always as easy as it seems.

FM 6-0 establishes clear responsibilities, but some staff-action items may not fit neatly into a coordinating or special-staff director's purview. Assigning the right action entity is not always readily apparent. This discretion is clearly an art; appropriately assigning appropriate roles and responsibilities can save time and effort.<sup>11</sup> The decision depends on capability, capacity, expertise or experience.

The final bit of additional discretion applied by the chief of staff requires him or her to determine the level of effort or degree of completion necessary for the given task. Not every product can be perfect, or even needs to be perfect, particularly in a time-constrained environment. The chief of staff must make a deliberate call to determine the level of development a staff product must meet and who will conduct the first review of this product to provide guidance for its further refinement. A common task list,

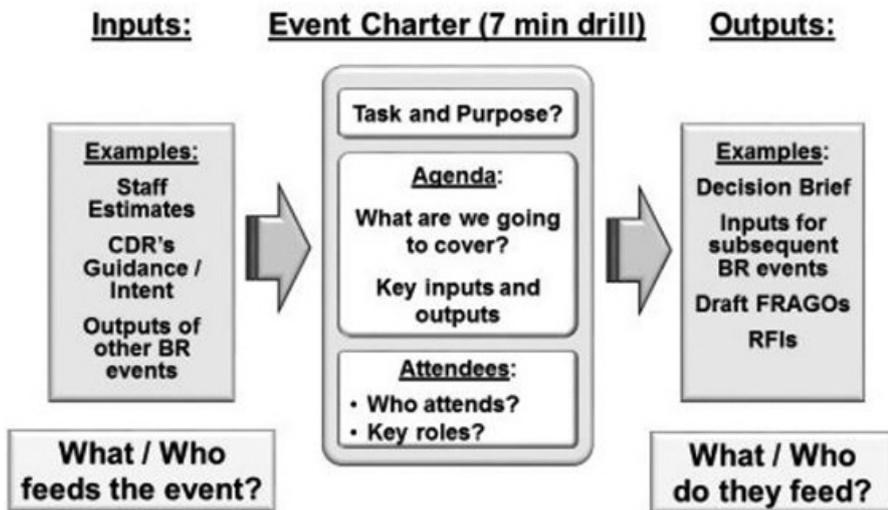


Figure 3. Essential information of a seven-minute drill. (Source: Department of Defense, *Knowledge and Information Management*, 3<sup>rd</sup> Edition, May 2018, [https://www.jcs.mil/Portals/36/Documents/Doctrine/fp/knowledge\\_and\\_info\\_fp.pdf?ver=2018-05-17-102808-507](https://www.jcs.mil/Portals/36/Documents/Doctrine/fp/knowledge_and_info_fp.pdf?ver=2018-05-17-102808-507))

routinely reviewed, helps ensure that the staff captures and answers commander's directives and questions.

## Takeaway

The chief of staff's "Big 6" are not the "be all and end all" of properly administering a staff. These are but observations and accumulated lessons I've learned over time. My hope is that these observations add to the discussion and provide others the thoughts and possible means to expand on and improve the performance of their own organizations.

These tools are not meant to restrict human creativity. As a recent article on staffs warned, competent staff officers "must be able to drive the staff process instead of becoming victim to them."<sup>12</sup> Therefore, the "Big 6" creates a structure for interaction, and it's a means to regulate the function of complex and complicated organizations. The ultimate aim is that this is "a process and chain of events that starts with an idea and ends with an advantage."<sup>13</sup>

Staff officers must always strive to promote the staff virtues of competence, clarity of thought, initiative, adaptability and flexibility.<sup>14</sup> These qualities, coupled with efficient processes, will enable an organization to achieve results. My wish is that they may help to empower your organization.

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Command, Fort Bliss, TX; and commander, 4<sup>th</sup> Battalion, 6<sup>th</sup> Infantry Regiment, Fort Bliss. COL Morgado's military schools include the Armor Officer Basic Course; Aviation Captain's Career Course; Command and General Staff College; Advanced Military Studies Program, School of Advanced Military Studies (SAMS); and Advanced Strategic Leadership Studies Program, SAMS. COL Morgado holds a bachelor's of arts degree in government from Lehigh University and a master's degree in diplomacy from Norwich University.

## Notes

<sup>1</sup> FM 6-0, *Commander and Staff Organization and Operations*, Washington, DC: Headquarters Department of the Army, May 2014.

<sup>2</sup> Army Doctrine Publication (ADP) 5-0, *The Operations Process*, Washington, DC: Headquarters Department of the Army, 2019.

<sup>3</sup> Ibid.

<sup>4</sup> ADP 6-0, *Mission Command: Command and Control of Army Forces*, Washington, DC: Headquarters Department of the Army, July 31, 2019.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Army Training Publication (ATP) 6-22.6,



Figure 4. Soldiers assigned to the Eighth Army staff conduct a sync meeting at the unit's headquarters on U.S. Army Garrison – Humphreys, Republic of Korea Aug. 11, 2021. (U.S. Army photo by SGM Andrew Kosterman, Eighth Army Public Affairs Office)

**Army Team Building**, Washington, DC: Headquarters Department of the Army, October 2015.

<sup>8</sup> ATP 6-0.5, **Command Post Organization and Operations**, Washington DC: Headquarters Department of the Army, March 2017.

<sup>9</sup> FM 6-0.

<sup>10</sup> Ibid.

<sup>11</sup> ATP 6-22.6.

<sup>12</sup> Eric Aslahson and Richard T. Brown, "Staff Colonels are the Army's Innovative Engines," **Army**, December 2016.

<sup>13</sup> Ibid.

<sup>14</sup> ADP 6-0.

## ACRONYM QUICK-SCAN

**AO** – action officer

**BR** – battle rhythm

**CDB** – command decision board

**CIB** – chief of staff's integration board

**CG** – commanding general

**CoS** – chief of staff

**CSP** – campaign-support plan

**CSWG** – communications-strategy working group

**CUB** – commander's update brief

**DCG** – deputy commanding general

**DCoS** – deputy chief of staff

**Dir** -- director

**EXSUM** – executive summary

**FM** – field manual

**FRAGO** – fragmentary order

**FSCoord** – fire-support coordinator

**GO** – general officer

**IDWG** – information-dominance working group

**MSC** – major subordinate command

**O&I** – operations and intelligence

**OPLAN** – operational plan

**OPORD** – operations order

**RFI** – request for information

**SOP** – standing operating procedure

**TEWG** – targeting and effects working group

**ToR** – term of reference

**WfF** – warfighting function

**WG** – working group



## Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

**LUCAS, GEORGE W. PVT**  
Unit: Company C, 3rd Missouri Cavalry. Place and date of action: Benton, AR, July 25, 1864. Entered service: Mt. Sterling, Brown County, IL. Born: Adams County, IL. Date of issue: December 1864. Citation: Pursued and killed Confederate BG George M. Holt, Arkansas Militia, capturing his arms and horse.

**LYMAN, JOEL H.**  
Rank and unit: Quartermaster sergeant, Company B, 9th New York Cavalry. Place and date of action: Winchester, VA, Sept. 19, 1864. Entered service: East Randolph, NY. Born: Cattaraugus, NY. Date of issue: Aug. 20, 1894. Citation: In an attempt to capture a Confederate flag, he captured one of the enemy's officers and brought him within the lines.

**LYON, FREDERICK A. CPL**  
Unit: Company A, 1st Vermont Cavalry. Place and date of action: Cedar Creek, VA, Oct. 19, 1864. Entered service: Burlington, VT. Born: June 25, 1843, Williamsburg, MA. Date of issue: Nov. 26, 1864. Citation: With one companion, captured the flag of a Confederate regiment, three officers and an ambulance with its mules and driver.

**MADISON, JAMES SGT**  
Unit: Company E, 8th New York Cavalry. Place and date of action: Waynesboro, VA, March 2, 1865. Entered service: Fairport, NY. Born: Niagara, NY. Date of issue: March 26, 1865. Citation: Recapture of GEN Crook's headquarters flag.

**MANDY, HARRY J. 1SG**  
Unit: Company B, 4th New York Cavalry. Place and date of action: Front Royal, VA, Aug. 15, 1864. Entered service: New York, NY. Born: England. Date of issue: Aug. 26, 1864. Citation: Capture of flag of 3rd Virginia Infantry (CSA).

# Winning the War on Excess: Operation Pegasus Harvest and the Development of the Division Material Management Center

by CPT Miguel J. Denis, LTC Xeon Simpson and COL Patrick A. Disney

The buildup of excess across the Army hinders the Army's ability to create space for modernization and generates maintenance shortfalls. Different military installations have tried to tackle this problem with lateral-transfer rodeos or a weeklong operation dedicated to turning in equipment.

However, this is never enough to solve the problem of excess. The issues vary on why units do not turn in equipment or conduct lateral transfers – from a complicated bureaucratic turn-in process to a rotational mission to European Command, Korea or Central Command. The solution would be to remove the property from the unit's hand receipts and create an entity whose only job is to turn in the equipment by disposition instruction.

First Cavalry Division Sustainment Brigade at Fort Hood, TX, developed Operation Pegasus Harvest to address

excess in 1<sup>st</sup> Cavalry Division and unencumber units of their excess. Sustainment Brigade established Team Harvest to occupy a motorpool to receive division excess and conduct maintenance and supply operations per disposition instructions.

The disposition instructions were found on the proposed sourcing decision (PSD). Each PSD has specific instructions on how a piece of equipment is turned in to the logistics enterprise. PSDs are managed in the Decision-Support Tool-Sourcing Module (DST-SM), which tracks all PSDs across the Army.

Operation Pegasus Harvest was managed by the Division Material Management Center (DMMC), which is under the Division Material Readiness Center (DMRC) in 1<sup>st</sup> Cavalry Division's Sustainment Brigade. It was essential that the DMMC and its staff fully support the operation. This allowed command-and-control from Sustainment Brigade and daily tracking at DMRC of

equipment being transferred into Pegasus Harvest or turned into the logistic enterprise. It was one of the first operations the DMRC and sections within the DMMC took up.

## Problem set

The dilemma in 1<sup>st</sup> Cavalry Division goes back a decade to the last modernization, and the issues have not diminished. At its worst, 1<sup>st</sup> Cavalry Division has more than 10,000 pieces of excess that can be seen on DST-SM, with more than 61 percent of PSDs delinquent and infeasible.

In addition, there was a knowledge gap between the supply section and property-book officers (PBOs) on their knowledge of DST. Supply sections at the company level either did not have access to DST or lacked knowledge to vet equipment, conduct transaction matching (which closes out PSDs) and use DST to analyze excess.

Operation Pegasus Harvest was the answer to help 1<sup>st</sup> Cavalry Division turn in excess to the logistics enterprise (Defense Logistics Agency (DLA) Disposition Services, Army Field Support Battalion (AFSBn)-Hood, Army Sustainment Command (ASC), etc.). Pegasus Harvest is a 1<sup>st</sup> Cavalry Division Sustainment Brigade lead operation with support from the combat brigades, creating a team from the ground up with the mission to collect, prepare and turn in excess.

## Planning process

The proposed make-up of Team Harvest was 45 Soldiers, which included one officer, one PBO (civilian or warrant officer), 13 noncommissioned officers and 31 Soldiers. Team Harvest then split up into two teams, a supply team and a maintenance team. The maintenance team's operation included preparing equipment for turn-in, stewardship of equipment in the motorpool and repairing the equipment if needed. The maintenance team needed to understand the disposition



Figure 1. MG Jeffery Broadwater, commander of 1<sup>st</sup> Cavalry Division, speaks to division and corps leaders during Operation Pegasus Harvest. (U.S. Army photo)



**Figure 2. Wrecker crews support turn-in of rolling stock to DLA Disposition Services, AFSBn-Hood and the Modernization Displacement Repair Site (MDRS). (U.S. Army photo)**

instructions to get the equipment suited for turn-in.

The supply team split up into three smaller teams. Team 1 processed equipment into Pegasus Harvest from the units. Team 2 consisted of the PBO taking the equipment off the unit's hand receipt. Team 3 prepared paperwork needed to turn in the equipment. Teams would be able to flex to help each other in case of overwhelming work.

The next crucial piece of the operation was having a unit-identification code (UIC) with all the required Department of Defense Activity Address Codes (DoDAACs) to hold the equipment and to order parts depending on the PSD instructions. For Pegasus Harvest, 1<sup>st</sup> Cavalry Division Sustainment Brigade used a UIC from 502<sup>nd</sup> Human Resources Company, which has multiple UICs to deploy teams across the world.

This UIC was used to remove the equipment from company commanders and placed under the stewardship of Team Harvest. Team Harvest would then follow the PSD instructions to turn in the equipment to the right agency or to conduct the lateral transfer. Team Harvest was using half of the Special Troops Battalion's motorpool to conduct the operation.

## Business rules

The Pegasus Harvest officer in charge, with the support of 1<sup>st</sup> Cavalry Division Sustainment Brigade and 1<sup>st</sup> Cavalry Division PBO, developed business rules for the operation:

1. Equipment destined for transfer to another unit must contain available basic issue item (BII)/components of end item (CoEI) and fully mission capable (FMC) + safety (no internal division lateral transfers go to Pegasus Harvest).
2. No hazardous materials will be accepted (oil cans, Class III (petroleum), etc.).



**Figure 3. The property-book team receives equipment from units, examining paperwork and equipment. (U.S. Army photo)**

3. All electronic storage mediums will be sanitized and accompanied by DLA Form 2500 before consolidation at the division-support area (DSA).
4. No "pending vetting" PSDs will be accepted.
5. The losing unit was financially responsible for BII/CoEI shortages. The unit must requisition before property transfer via Form PBO1. Shortages will be ordered at the post joint inspection, with Team Harvest's supply team present on-site.
6. Transportation to the DSA was the losing unit's responsibility. The 1<sup>st</sup> Cavalry Division Sustainment Brigade could provide more lift support if needed. If Heavy Equipment Transporter support was needed, it was the losing unit's responsibility to provide the escorts.

However, to unencumber the combat brigades, Pegasus Harvest started to accept open-vetting PSD. These PSDs were not approved and would still be vetted by different echelons from the unit level to Headquarters Department of the Army. The intent was to have Pegasus Harvest vet equipment up to the corps level to expedite the approval process.

Once a PSD had been approved, it fell into three categories: "as is," "FMC + safety" and "10-20." Each of these categories had different requirements to turn into Pegasus Harvest:

- "As is" turn-in: Requires Form DA 3161 (request for issue or turn-in), the printed disposition and be generally clean and free of debris. CoEI and BII shortages are required but not on order.

- “10/20” standard: Requires DA 3161, printed disposition, joint inventory and PB01 annotating shortages on order, and be generally clean and free of debris.
- “FMC + safety”: Requires DA 3161, printed disposition, joint inventory, PB01 annotating shortages, and be generally clean and free of debris, with most of BII/CoEI present.

Although Pegasus Harvest did not accept internal lateral transfers to the division, PSDs going to internal Fort Hood units which were not in 1<sup>st</sup> Cavalry Division, at DLA or a depot, and lateral transfers outside Fort Hood were accepted at Pegasus Harvest. Also, it’s essential to understand that “as is” is not what it seems. Each PSD has a specific set of instructions; for example, it can say “as is,” but the PSD would require all the BII and CoIE to be sent with the equipment. A lot of “as is” PSD going to depot require all the BII and CoIE to accompany the equipment.

## Results

Pegasus Harvest collected more than 2,500 pieces of equipment, totaling more than 600 PSDs from 1<sup>st</sup> Cavalry Division units and a total worth of \$81

million. Before the development of MDRS, Team Harvest was able to turn in 440 pieces of equipment, including 84 pieces of rolling stock, back to the logistics enterprise.

Pegasus Harvest was never fully manned, only achieving 25 Soldiers of the 45 originally planned.

The officer-in-charge and supply sergeant needed to get PBO access to Global Combat Support System (GCSS)-Army and DST to facilitate turn-ins and conduct vetting at division level. Team Harvest was able to do a lot by having a strong relationship with III Corps, AFSBn-Hood, ASC and 1<sup>st</sup> Cavalry Division units – and by gaining an understanding of DST and the turn-in process.

The overall result was the creation of the MDRS for Fort Hood and the Army.

## Lessons-learned

Pegasus Harvest had to overcome many challenges, from having a good understanding of GCCS-Army and DST to learning about the different turn-in processes for each agency. For example, Team Harvest during the first few months had to depend on outside help in pulling DST information and

processing equipment into the property book – if the team would have had access from the beginning, then the process of removing equipment from the property book could have been faster.

Moreover, after gaining access to DST, Team Harvest was able to see many problems with vetting open PSD and why some PSD was not being approved. This allowed Team Harvest to fix many of the vetting open PSD and get the PSD approved for turn-in or lateral transfers.

One pre-planning lesson-learned is having a UIC with a working DODAAC to order parts. Pegasus Harvest was not able to order parts and this hindered the maintenance operation.

Furthermore, having all 45 soldiers with a dedicated PBO could have made the difference in taking equipment off hand receipts on time and doubling the turn-in output. In addition, keeping the same Soldiers throughout the operation and not switching them out would have helped keep track of paperwork from each piece of equipment, resulting in a smoother process.

However, Team Harvest was still able to make huge dent in the war on excess in 1<sup>st</sup> Cavalry Division.

Operation Pegasus Harvest also demonstrated the importance of the DMMC Class VII section to a division. The Class VII section developed from Pegasus Harvest and is currently on the modified table of organization and equipment (MTOE) under the division-sustainment bridged (DSB) concept; the MTOE will take effect in Fall 2021 for 1<sup>st</sup> Cavalry Division Sustainment Brigade. The Class VII section can monitor DST, vet PSD for the division, confirm PB01 have been executed and improve the R and S ratings for the division. The Class VII section will be the assets visibility for the division and work closely with the Corps Materiel Readiness Center in the expeditionary sustainment command (ESC).

Every division needs to implement the concept of the DMMC into their DSBs. DMMC with the Class VII section will help the Army manage and improve the overall readiness and modernization efforts.



Figure 4. Pegasus Harvest divests M9s to the weapons warehouse, AFSBn-Hood. (U.S. Army photo)

Team Harvest was able to build a strong relationship with DLA, AFSBn-Hood, ASC, FORSCOM and Army Materiel Command. With these relationships, it was possible to work out many of the issues in the PSD process – from getting items approved to changing the losing UIC to allowing equipment to be turned in from the Pegasus Harvest UIC. This close relationship helped to create the MDRS.



**Figure 5. A maintenance Soldier prepares a humvee for turn-in per the PSD instruction. (U.S. Army photo)**

The Team Harvest officer in charge and supply sergeant played a role in planning the MDRS, from helping the AFSBn-Hood / 13<sup>th</sup> ESC understand the challenges of turning equipment to passing on lessons-learned from unit transactions.

## Conclusion of Pegasus Harvest and transition to MDRS

Pegasus Harvest was successful because it allowed 1<sup>st</sup> Cavalry Division to look at itself when it came to excess and maintenance. Units started to identify excess and began to create PSD on DST, allowing higher echelons to see the excess. On the maintenance side, 1<sup>st</sup> Cavalry Division was now aware that a lot of equipment was not maintained to standard – if it was excess, it was left alone to gather dust in motorpools. Units needed to move equipment to units that needed it or turn the equipment into a depot or DLA to feed the refurbishing efforts.

When Pegasus Harvest started in mid-July 2020, there were more than 10,000 pieces of excess on DST; as of early December 2020, 1<sup>st</sup> Cavalry Division had less than 8,000. That's on top of excess identified and placed on DST. However, the war on excess is perpetual and unsustainable for a sustainment brigade to take on

single-handedly. MDRS is the long-term solution to deal with excess across the Army.

MDRS uses the same business rules and lessons-learned from Pegasus Harvest on a much larger scale, servicing all of Fort Hood. At this time there are two other MDRS sites being stood up, with more to follow across all major Army installations. What Pegasus Harvest started is a movement that will help improve the lifecycle management of all Army equipment and help the readiness of our combat brigades.

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*oak-leaf clusters, Defense Meritorious Service Medal, Meritorious Service Medal (one silver oak-leaf cluster), the Parachutist Badge, Air-Assault Badge and Combat Action Badge.*

## ACRONYM QUICK-SCAN

<b>ABCT</b> – armored brigade combat team	<b>DST-SM</b> – Decision-Support Tool-Sourcing Module
<b>AFSBn</b> – Army Field Support Battalion	<b>ESC</b> – expeditionary sustainment command
<b>ASC</b> – Army Sustainment Command	<b>FMC</b> – fully mission capable
<b>BII</b> – basic issue item	<b>GCSS</b> – Global Combat Support System
<b>BSB</b> – brigade-support battalion	<b>JBLM</b> – Joint Base Lewis-McChord
<b>CoEI</b> – components of end item	<b>MDRS</b> – Modernization Displacement Repair Site
<b>DLA</b> – Defense Logistics Agency	<b>MTOE</b> – modified table of organization and equipment
<b>DMMC</b> – Division Material Management Center	<b>PBO</b> – property-book office(r)
<b>DMRC</b> – Division Material Readiness Center	<b>PSD</b> – proposed sourcing decision
<b>DoDAAC</b> – Department of Defense Activity Address Code	<b>SPO</b> – support-operations officer
<b>DSA</b> – division-support area	<b>UIC</b> – unit-identification code
<b>DSB</b> – division-sustainment bridge	



**Figure 6.** Pegasus Harvest marked equipment by type of turn-in, destination and attached instructions of how the equipment needed to be turned in. (U.S. Army photo)



**Figure 7.** A Pegasus Harvest maintenance Soldier purges an M-978A2 Heavy Expanded Mobility Tactical Truck at a purge site. (U.S. Army photo)



**Figure 8.** Pegasus Harvest supported the fielding of the Joint Light Tactical Vehicle by divesting all M-1097 hum-vee variants. (U.S. Army photo)

# Unity of Command through Unity of Effort



by CPT Jacob S. Conkright

A war in Afghanistan had never crossed the minds of leaders within our armed forces. However, after the attacks of Sept. 11, 2001 (9/11), the Central Intelligence Agency (CIA), U.S. Central Command (CENTCOM) and U.S. Army Special Operations Command (USASOC) started devising a plan to retaliate against the al-Qaeda terrorist network and the Taliban who controlled Afghanistan.

Al-Qaeda knocked down the twin towers of the World Trade Center in New York, crashed an airliner into the Pentagon and crashed yet another plane into a field near Shanksville, PA, when the passengers intervened to prevent al-Qaeda's use of United Airlines Flight 93 as a weapon to attack another U.S. target. After-action speculation was that the four terrorists who hijacked Flight 93 had intended to attack one of several possible targets in the area that included the White House, the U.S. Capitol, the Camp David presidential retreat in Maryland or one of several nuclear power plants along the U.S. eastern seaboard.

During the first days of the war in Afghanistan in October 2001, Combined Joint Special Operations Task Force (CJSOTF) and CENTCOM faced a difficult and complex mission set. Afghanistan is a rugged, landlocked country surrounded by countries who were unwilling to support U.S. combat operations in and around their territory. Afghanistan is also fractured internally by warring ethnic tribes. Furthermore, because there was not yet a finalized war plan for Afghanistan, U.S. representatives had to hastily conduct diplomatic work in neighboring countries to develop launch and staging capabilities and to create a logistics chain to support forces in theater.

USASOC quickly developed a plan to place Joint Special Operations Command (JSOC), Special Forces Group (SFG) and sea, air and land (SEAL) teams within the theater to work with local warlords and create the Northern Alliance. CENTCOM and the CIA believed three warlords – Abdul Rashid Dostum, Ustad Atta Mohammed and Haji Mohammad Mohaqqiq – were the key to fighting the Taliban due to their

major influence in the area. The United States would use this to its advantage by bringing the three warlords together to fight for a common purpose. This was the strategic aim of the mission.

The president designated CENTCOM commander GEN Tommy R. Franks as the officer responsible for the planning and execution of a joint invasion of Afghanistan. In preparation for the invasion, GEN Franks decided to create an *ad hoc* command-and-control (C2) structure where he would retain headquarters in Tampa, FL, due to the time it would take to establish a necessary joint-operations center (JOC) in-country (soon to be Qatar). Doing this was a substantial risk because the C2 node would be located nearly 8,000 miles away from the battlefield.

## Managing risk

GEN Franks mitigated this risk by sending SOF into Afghanistan to develop the situation. There was pressure on CENTCOM to retaliate quickly against the Taliban, but deploying conventional forces into theater was not a

feasible option because it takes about six months to effectively deploy a conventional force overseas. Therefore special-operations forces (SOF) were the obvious pick to deploy ahead of a major conventional force because SOF's primary training revolved around unconventional warfare.<sup>1,2</sup>

GEN Franks' decision to decentralize his command and empower subordinate leaders during a time of great political pressure toward centralization proved critical to the mission success of SOF in Afghanistan, and it was a demonstration of the value of unity of command through unity of effort.

The C2 structure had many pitfalls since Tampa was the main hub of information. Failures to determine who reported to whom, to manage the complications of operating in different time zones and to designate approving authority for potential targets all contributed to frustrate SOF mission success in theater from October-December 2001. These problems endangered the chances of SOF success and demanded immediate solutions. In response, CENTCOM created CJSOTF, Combined Joint Task Force (CJTF) Mountain, Joint Interagency Task Force Counterterrorism and Coalition Joint Civil Military Operations Task Force.

Under CJSOTF, there were three joint special-operations task forces (JSOTF) embedded in different warlords' armies, all with a common purpose of fighting the Taliban by conducting clandestine and unconventional warfare operations.<sup>3</sup>

There were four noteworthy subordinate commands stood up under GEN Franks' orders. The commands were to eliminate sanctuary to al-Qaeda in southern Afghanistan by putting pressure on them in their own backyard. The intent was to change the environment of Afghanistan to allow time and space for conventional forces capable of withstanding a campaign to be inserted.<sup>4</sup>

- **JSOTF North, also known as JSOTF Dagger**, assigned to northern Afghanistan, was composed of Operational Detachment Alpha (ODA) teams from 5<sup>th</sup> SFG, Air Force Special Operations Command and

160<sup>th</sup> Special Operations Aviation Regiment. TF Dagger's mission was to work with Northern Alliance commanders and enable their seizure of Taliban-controlled cities.<sup>5</sup>

- **JSOTF South, also known as JSOTF K-Bar**, assigned to southern Afghanistan, was composed of SEAL Teams 2, 3 and 8 and ODAs from 3<sup>rd</sup> SFG. TF K-Bar's mission revolved around foreign internal defense, unconventional warfare, special reconnaissance and site exploitation.<sup>6</sup>
- **JSOTF Sword** was composed of Delta Force, Naval Special Warfare Development Group, Ranger Regiment, Intelligence Support Activity and SOAR. Their missions revolved around capturing or killing al-Qaeda and Taliban high-ranking officials.<sup>7</sup>

- **CJTF Mountain** was a conventional Army unit composed of Soldiers from 10<sup>th</sup> Mountain Infantry Division. TF Mountain's mission revolved around security and support operations and provision of a quick-reaction force for ODAs in contact. In March 2002, LTG Franklin Hagenbeck, commander of TF Mountain, would command the CJSOTF conducting Operation Anaconda.<sup>8</sup>

## Continuity of leadership

Joint Publication (JP) 3-0, *Joint Operations*, states the principles and doctrine for conducting joint operations, defining C2 as "the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission. Command, in particular,



**Figure 1. 10<sup>th</sup> Mountain Division Soldiers deploy for Operation Anaconda. (U.S. Army photo)**

includes both the authority and responsibility for effectively using available resources to accomplish assigned missions.”<sup>9</sup>

Continuity of leadership allows units to conduct constant operations without being hindered by an individual’s lack of knowledge of the common operating picture. Command passed through the hands of three individuals from October 2001 to March 2002 with minimal impact to the mission. GEN Franks established task forces Dagger, Sword and K-Bar as a CJSOTF at Karshi Khanabad (K2) Air Base, Uzbekistan, in early October 2001. From a documentation and orders perspective, CJSOTF was under the operational control (OPCON) of U.S. Special Operations Component Central and therefore OPCON to CENTCOM.

The 16<sup>th</sup> Special Operations Wing (SOW) commander, COL Frank J. Kisner, was the initial commander of the JSOTF at K2. This was due to the air campaign being the first phase of the war. Also, the combat-search-and-rescue unit that Kisner commanded provided a contingency response force if a downed-pilot situation happened. Since 16<sup>th</sup> SOW was initially the only operational unit on K2, the obvious decision for CENTCOM was to have Kisner command assets co-located with 16<sup>th</sup> SOW. It was not until 5<sup>th</sup> SFG deployed as part of TF Dagger that COL John Mullholland assumed command of CJSOTF due to having the greater part of assets within K2.<sup>10</sup>

## Communication challenges

As the air campaign came to a close and preparation for Operation Anaconda began to take place, CENTCOM realized there must be a division headquarters JOC on the ground that was capable of C2 of the wide spectrum of assets involved in the operation. In 2001, SFGs did not possess any significant ability to expand C2 beyond the simple radios they were given, relying mainly on satellite communication. A division headquarters gave 5<sup>th</sup> SFG a lead element and lead integrator with a function of systems to provide unity of effort, interoperability, centralized planning and decentralized execution. CJTF Mountain was the only

division-level asset in theater capable of fulfilling this position, which put LTG Hagenbeck in command of CJ-SOTF.<sup>11</sup>

CENTCOM’s C2 had ambiguous lines of communication, which led to unclear operations in the Afghanistan theater from the beginning. CENTCOM established the organization structure of C2, which lasted for the beginning stages of fighting in Afghanistan. Author Denis Doty believes the crisis CENTCOM faced did not enable an adequate buildup of forces and forced an impromptu command relationship.<sup>12</sup>

A joint task force (JTF) JOC allows forces to run operations 24/7 while providing information requirements both vertically and horizontally for strategic, operational and tactical planning. Unfortunately, with more than 8,000 miles between Tampa and K2, time zones caused complications to arise without a JTF JOC. The TFs were conducting operations while leaders at CENTCOM were sleeping, and by the time they woke up, the war had changed. CJSOTF was also affected by waking up daily to new guidance from CENTCOM.

Since no JTF JOC was established, the Joint Staff was not getting the information it needed to brief the chairman of the Joint Chiefs of Staff. This caused the TF J-3s to provide daily updates directly to the Joint Staff on mission and after-action briefs. The TF J-3s had two windows of opportunity a day for these video teleconferences (VTCs) with the White House Situation Room and adjacent units in theater. This affected leaders being able to change operations since TFs are not manned to maintain a 24/7 JOC.<sup>13, 14</sup>

CENTCOM’s not establishing a JTF JOC in theater was a major failure in C2 for forces on the ground and back home. Establishing a JTF JOC at least at division level helps alleviate this issue by providing the information that higher headquarters needs while simultaneously running operations in theater. An operation of this magnitude needs a staff that can support it, and this was not the case during the initial stages of Afghanistan.

Doty discussed how doctrine states that any SOF operating in the same

theater will fall under the same canopy of one joint-force Special Operations component commander (JF-SOCC) but does not reference anything with two separate entities within the SOF community. The operations order published at the beginning of the operation clearly delineated that the JF-SOCC reported to CENTCOM, and TF Dagger and other SOFs were subordinate special-operations components. This C2 was understood within the SOF community, but according to Doty, it did not make its way to forces operating outside of the community.<sup>15</sup>

The 10<sup>th</sup> Mountain Infantry Division was the only conventional Army forces operating in theater from October to December 2001. While 10<sup>th</sup> Mountain worked alongside SOF, its role in security and support did not seem to be impacted by the C2 that SOF was abiding by. However, the C2 structure seemed to have more of an impact at the planning level and during asset allocation when preparing for Operation Anaconda.

The ideal solution would have been to establish a SOF headquarters in theater that controls operations and communication among the different TFs, the combined-air-operations center (CAOC) and CENTCOM to allow more effective cross-coordination. However this was not a feasible option due to time constraints involved with establishing a headquarters in theater, leading CJSOTF to a decentralized execution.

Unfortunately, the required relationships needed to fully support combat operations in theater were not established since there was no timed-phased force deployment data (TPFDD) in place. No TPFDD meant no advance-force staging base using U.S. Navy carriers from which to launch. This required CENTCOM to work the diplomatic piece simultaneous to the operations piece to deploy combat forces. This forced CENTCOM to develop ways for conventional forces to get to Afghanistan.

The preferred way would have been through Pakistan, but at that time there was a long period where Pakistan was providing support to the Taliban and al-Qaeda. Therefore Pakistan

would not allow the United States to launch attacks from it on the organizations it was supporting. This forced CENTCOM to attack from the north, which had many problem sets of its own. CENTCOM negotiated a deal with Uzbekistan to allow SOF to operate out of K2. The K2 basing rights show an instance where CENTCOM was able to work a diplomatic deal to enable U.S. forces on the ground to ensure mission success while also maintaining control in Tampa.<sup>16</sup>

Author Walter Perry discusses the basing constraints and the effects it had on both air and ground operations. He explained that CENTCOM had negotiated the basing rights, but operations were still limited. Airfields were often in poor condition and lacked the services needed to launch certain types of aircraft that could be employed if the situation was favorable. Many of the bases required long-distance flights with multiple air-to-air refueling points due to the distance from the area where SOF was operating.

Also, there were nations that allowed U.S. forces to occupy their territory but did not give launching authority in support of combat operations. All in all, this delayed the Air Force's ability to operate near Central Asia due to launch permissions needed from neighboring nations. The U.S. Navy and CENTCOM countered this constraint by staging an aircraft carrier in the Indian Ocean. Due to the distance, carrier pilots flew four- to six-hour operations, requiring refueling the aircraft to refuel three to four times, along with restricting flight time-on-target to one hour.<sup>17</sup> CENTCOM's ability to develop a plan to stage the aircraft carrier in support of a landlocked country led to a successful air campaign for the Northern Alliance.

## Controlling air assets

Controlling air-asset allocation among different forces operating in the same theater can be a fickle thing. Leaders had to look at whose mission sat higher in priority and attempt to divide assets equally. The chain of approval developed by CENTCOM had any information collected on targets in Afghanistan sent to both the CAOC in Saudi Arabia and CENTCOM in Tampa. The

CAOC would then send potential targets to CENTCOM for review. CENTCOM would review targets to ensure they were within the rules of engagement and work both vertically and horizontally with external agencies to ensure there would not be a diplomatic incident as a result of hitting the target. From Tampa, the approved targets would be sent to the CAOC, which then tasked both Air Force and Navy units with the approved targets from CENTCOM.

The Supreme Allied Commander-Europe (SACEUR) in Stuttgart, Germany, provided a colonel to serve as the TF commander to control air-asset allocation. The TF later became TF Dagger-West/SACEUR Forward. This established a direct link for air between the CAOC in Saudi Arabia and the TFs on the ground to ensure air assets were distributed across the theater to simultaneously support the TFs.<sup>18</sup> The TFs' front line spread out across the theater created little need to deconflict air space, further reinforcing the support provided for air-asset distribution.

TF Sword, a national asset, handled missions involving the capture or kill of high-ranking leadership within the Taliban and al-Qaeda. The niche mission set of TF Sword caused it to only be on the ground for very narrow windows a handful of times. This allowed JSOC capabilities and AC-130s to directly support TF Dagger.

While in theater, TF Sword reported directly to JSOC, with the exception of informing CENTCOM about missions it conducted and providing after-action reports. During the initial push in Afghanistan, TF Sword's focus was al-Qaeda, while TFs Dagger and K-Bar focused on the Taliban. Al-Qaeda targets were higher priority, causing assets to be divided in favor of TF Sword for the handful of times it was on the ground in contact.<sup>19</sup> From October 2001-March 2002, there were minimal issues with asset allocation among the TFs.

While TF K-Bar ran into the issue of not being allocated enough air assets, it was able to compensate with Marine Corps air. The only external tasking to the CAOC was the Marines' air assets since they were part of the Marine Air-Ground Task Force, and they usually

only had to support the ground guy, whether it was over the shore or in Afghanistan. However, TF K-Bar and the CAOC were able to work around this by placing Marine air in the classified annex of the air-tasking order.<sup>20</sup>

While it would seem that the ambiguous lines of communication would cause delayed approval of air assets, this was not the case. Since U.S. Air Force AC-130s were prioritized to TF Dagger and U.S. Marine Corps air to TF K-Bar, there was little need to deconflict air space among operational units. Also, it was not until March 2002, when conventional forces operated parallel to SOF, that forces needed to follow targeting doctrine and liaison handbooks to submit air-tasking orders within 24 to 96 hours of targeting, intelligence collection, air-support requests and airlift-support planning.<sup>21</sup> The ability to have air assets on station at a moment's notice enabled decentralized execution for TF commanders.<sup>22</sup>

CENTCOM's Combat-Arms Assessment Team's initial-impressions report states "the use of [SOF] in concert with conventional forces was difficult due to the poorly defined command relationships and SOF's predisposition to avoid sharing information or conduct parallel planning with conventional forces. SOF elements' unwillingness to vertically share information with the Coalition Forces Land Component Command staff and horizontally with other conventional forces hindered operational and tactical planning and execution."<sup>23</sup>

## Centralized execution

The preferred method of control in an operation of this magnitude is decentralized execution. However, CENTCOM's staff location in Tampa resulted in centralized execution of target processing.

The relationship that ground forces had with CENTCOM and CAOC for target processing shows CENTCOM's need for information to work the diplomatic pieces of the puzzle. Authors Walter L. Perry and David Kassing discussed how the desire was for operators to have latitude when executing an operation, but the rushed retaliation against the Taliban caused

CENTCOM to simultaneously work the diplomatic arena.<sup>24</sup>

While Perry and Kassing are correct in reference to Operation Anaconda, they lack information about target processing in Afghanistan from October-December 2001. Commanders were given their mission and intent, and then they had the leeway to process their targets internally.

TFs Dagger and K-Bar were allocated resources necessary to execute operations within mission parameters. Target information was reported to the Joint Staff and White House Situation Room daily to paint the picture for leaders who were not on the ground. There were also daily VTCs where the different TFs would coordinate to ensure mission success. TF Dagger's main objective was to push the Taliban out, while the mission of TFs K-Bar and Sword was to be a strike team. This unity of effort required cross-coordination to ensure mission success for the entire CJSOTF.

CJTF Mountain also took part in these daily VTCs to share information and conduct parallel planning with the other TFs. One major contributing factor was that the conventional forces' mission did not align with SOFs. Therefore there wasn't the need for SOF to share the same amount of information with conventional forces as compared to the other SOF task forces during

October-December 2001. It was not until Operation Anaconda, when LTG Hagenbeck took command and tactical control, that all assets came to bear. This required parallel planning between conventional forces and SOF.

## Takeaways

GEN Franks' decision to decentralize his command and empower subordinate leaders during a time of great political pressure toward centralization proved critical to SOF mission success in Afghanistan. It was a demonstration of the value of unity of command through unity of effort.

CENTCOM's hunger for information of activities in theater was mainly due to there being no TPFDD for the region. That being the case, CENTCOM had to undertake diplomatic relations in neighboring countries to develop launch and staging capabilities and to create a logistics chain capable of supporting the long-term campaign that would follow. Unfortunately, CENTCOM failed to create a centralized command in theater by not establishing a division-level JTF JOC capable of conducting centralized planning. While this would seem a major issue, GEN Franks chose forces capable of operating with minimal guidance, intending for them to develop the theater.

Unity of effort is the state of

harmonizing efforts among multiple organizations toward a similar objective.<sup>25</sup> The CJSOTF's capability and capacity to enable one another toward mission success further supports the belief of unity of command through unity of effort.

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## Notes

<sup>1</sup> Author's interview with U.S. Navy retired Rear Adm. Kerry Metz, 2021.

<sup>2</sup> Author's interview with U.S. Army retired GEN David D. McKiernan, 2021.

<sup>3</sup> Metz.

<sup>4</sup> Author's interview with COL Mark Rosengard, U.S. Special Forces, 2021.

<sup>5</sup> Ibid.

<sup>6</sup> Metz.

<sup>7</sup> Leigh Neville, *Special Forces in the War on Terror (General Military)*, Oxford, England: Osprey Publishing, 2015.

<sup>8</sup> Ibid.

<sup>9</sup> JP 3-0, *Joint Operations*, Washington, DC, Sept. 10, 2001.

<sup>10</sup> U.S. Air Force MAJ Denis P. Doty, "Command and Control of Special Operations Forces for the 21<sup>st</sup> Century Contingency Operations," Naval War College paper, Feb. 3, 2003.

<sup>11</sup> Rosengard.

<sup>12</sup> Doty.

<sup>13</sup> Metz.

<sup>14</sup> Rosengard.

<sup>15</sup> Doty.

<sup>16</sup> McKiernan.

<sup>17</sup> Walter Perry and David Kassing, *Toppling the Taliban*, Santa Monica, CA: RAND Corporation, 2015.

<sup>18</sup> Author's interview with U.S. Air Force COL Cory Peterson, 2021.

<sup>19</sup> Metz.

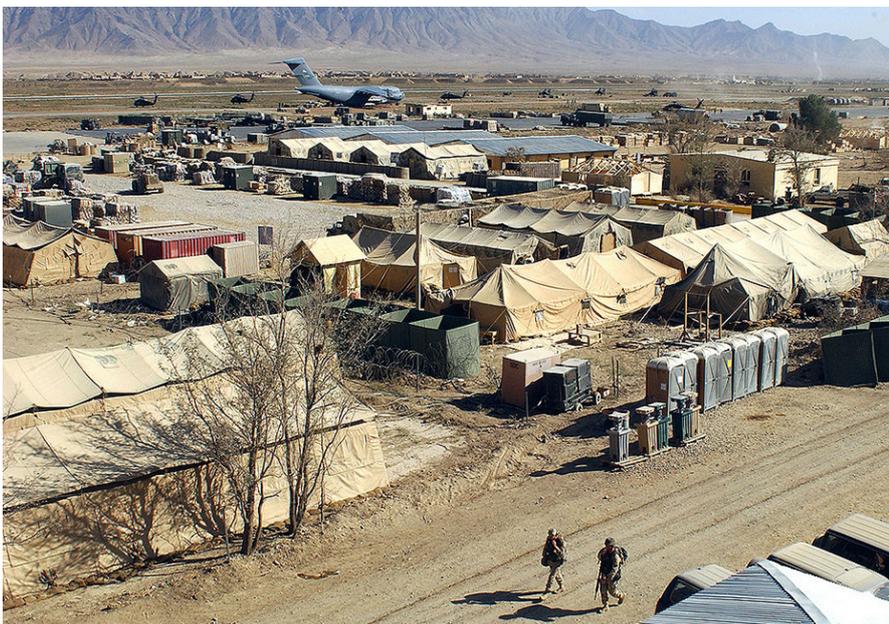


Figure 2. The temporary military base at Bagram, Afghanistan. (U.S. Army photo)

<sup>20</sup> Ibid.

<sup>21</sup> U.S. Air Force MAJ David J. Lyle, "Operation Anaconda: Lessons Learned, or Lessons Observed?", U.S. Army Command and General Staff College, June 12, 2009, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a502029.pdf>.

<sup>22</sup> Rosengard.

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<sup>24</sup> Perry and Kassing.

<sup>25</sup> Scott Lawrence, "Joint C2 through Unity of Command," *Joint Forces Quarterly*, Autumn/Winter 1994-95.

## ACRONYM QUICK-SCAN

**C2** – command and control

**CAOC** – combined-air-operations center

**CENTCOM** – U.S. Central Command

**CIA** – Central Intelligence Agency

**CJTF** – combined joint task force

**CJSOTF** – Combined Joint Special Operations Task Force

**JFSOCC** – joint-force Special Operations component commander

**JOC** – joint-operations center

**JP** – joint publication

**JSOC** – Joint Special Operations Command

**JTF** – joint task force

**JSOTF** – joint special-operations task force

**K2** – Karshi Khanabad Air Base

**ODA** – Operational Detachment Alpha (12-person startup team of Special Forces)

**OPCON** – operational control

**SACEUR** – Supreme Allied Commander-Europe

**SEAL** – sea, air and land

**SFG** – Special Forces Group

**SOAR** – Special Operations Aviation Regiment

**SOF** – special-operations forces

**SOW** – special-operations wing

**TF** – task force

**TPFDD** – timed-phased force deployment data

**USASOC** – U.S. Army Special Operations Command

**VTC** – videoteleconference

## Send Us Your Manuscripts

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## Call Your Attorney: What Your Servicing Judge Advocate Can Do for You

by MAJ Brent W. Thompson

Remember “The Two Bobs” from the movie *Office Space*? Bob Slydell and Bob Porter are two management consultants hired to help a downsizing company identify which workers to lay off. After a series of interviews, they ask an agitated employee the question that has become a famous pop-culture reference: “What would you say you do here?”<sup>1</sup>

As a judge advocate, I have been on the receiving end of the “What do you do?” question a time or two myself. While a lawyerly answer to the query would be “It depends,”<sup>2</sup> a better response might be, “A little bit of everything.”

Some staff responsibilities in the military are relatively straightforward. For instance, sections like the S-2, S-3 and S-4 specialize in well-defined warfighting functions like intelligence, operations and logistics, respectively.<sup>3</sup> A judge advocate’s duties are less distinct. The legal section is involved in any issue that contains a legal component – and almost every staff section or process includes a legal component.

To outline the contours of our varied legal practice, the U.S. Army Judge Advocate General’s Corps (JAGC) uses a set of four guiding principles called “the constants”: mastery of the law,

servant leadership, stewardship of the profession and principled counsel.<sup>4</sup> I will explain what the judge advocate can do for an organization using the “Four Constants” framework.

### Mastery of law

Doctrinally JAGC attorneys provide legal services to two entities: 1) the Army and 2) Soldiers and family members.<sup>5</sup> Legal services to the Army include administrative and civil law, contract and fiscal law, military justice and national-security law.<sup>6</sup> Legal support to Soldiers and family members includes legal assistance, claims and trial-defense service.<sup>7</sup>

Within each legal function, judge advocates perform discrete tasks ranging from courts-martial and adverse administrative actions, to advocating positions in environmental law and cyberspace law, to guiding commanders through complex battlefield issues in the operational environment.<sup>8</sup>

Army judge advocates follow a “versatile and expert” career model in which the JAGC expects attorneys to specialize in at least one legal function while maintaining general skills across the breadth of legal practice.<sup>9</sup> Your servicing judge advocate is thus a “jack of all trades, master of some” who can provide wide-ranging legal advice.<sup>10</sup> A helpful-practice tip, then, is to CYA:

call your attorney.

Are you:

- In the logistics section and initiating a Financial Liability Investigation of Property Loss? Call your attorney.
- A company commander who suspects one of your Soldiers has been ingesting illegal drugs? Call your attorney.
- In the operations section and have been “voluntold” to plan the unit ball? Call your attorney.
- Facing an executive officer and a private organization asking if they can donate some gifts to the troops? Call your attorney.

I think you can see the trend here. No matter the subject, if it involves laws or regulatory guidance, your servicing judge advocate can assist in navigating the issue. Your attorney can help you avoid major legal pitfalls if you include them early and often. Judge advocates like to use the term “preventive law” because we want to anticipate and prevent legal problems before they arise. Our aim, always, is to help commanders and staff members arrive at the best and safest “yes.”

If the judge advocate cannot assist, the legal section will usually direct the person to a place that can help. For example, a brigade judge advocate

represents the government and thus cannot advise a Soldier who is subject to an administrative investigation. However, the attorney or paralegals will often provide the Soldier with directions to the installation's legal-assistance office or trial-defense service. They exist to serve Soldiers and families with a broad range of legal issues.

## Servant leadership

Servant leadership is a philosophy in which a leader makes it their mission to serve others.<sup>11</sup> The judge-advocate role is centered on service to the command. By design, Army judge advocates rarely command a tactical organization. Instead, the legal adviser's role is to help the commander and other staff members be successful as they lead the organization. Serving on a military staff is a team sport,<sup>12</sup> and judge advocates know they are in a supportive role.

Key-developmental time at the brigade level can sometimes become a knife fight as field-grade officers compete for limited opportunities to eventually command a battalion.<sup>13</sup> As a brigade judge advocate, I knew that battalion command was never a possibility for me, which freed me up to help fellow field-grade officers with their tasks and missions without concerning myself with consequence or reward.

I was also acutely aware that the brigade commander chose the executive officer and S-3 – and did not choose me – so it was essential to respect their positions and support them in any way I could. Most judge advocates understand their role as a team player and focus on assisting fellow staff members, adjacent units and the higher headquarters.

One way a judge advocate can be a valued contributor is during operational planning and the military decision-making process (MDMP). Lawyers tend to think differently than other people – indeed, we are trained to think differently. Law school incorporates extended exercises in legal reasoning, where the students apply evolving systems of rules to diverse and varied facts.<sup>14</sup> We colloquially call the non-linear thought process of legal reasoning “thinking like a lawyer.”

The judge advocate can provide an

outside-the-box perspective in MDMP and help detect gaps or deficiencies in a proposed course of action. Judge advocates view problems through a rule-of-law lens to provide the commander with options.<sup>15</sup>

A hallmark of an effective executive officer or S-3 is the ability to maximize the staff's talents. When I was on a brigade staff, the executive officer would invite the brigade judge advocate and the public-affairs officer (PAO) to small-group sessions on Army design methodology. Why? Because the brigade judge advocate has insight into the rules that apply to a problem and the consequences of a decision. The PAO can help predict how external audiences will react. Specialty staff members often offer a unique perspective to understand and frame a problem. Leaders who understand and harness the strengths of their staffs will make the organization stronger overall.

## Stewardship of profession

Stewardship is a commitment to strengthen the Army as a profession.<sup>16</sup> At its core, stewardship believes that the American people have entrusted Army leaders with their sons, daughters and material resources. Army leaders thus have a sacred obligation to care for these assets.<sup>17</sup> Commanders must establish a professional climate that fosters teamwork and strengthens trust.<sup>18</sup> Decisions and actions must be right, both today and tomorrow.<sup>19</sup> Judge advocates can assist leaders with ensuring appropriate stewardship at the strategic, organizational and individual levels.

“Living up to the American people's trust is something we have to do every day,” said Army Secretary Ryan D. McCarthy when addressing the murder of SPC Vanessa Guillen, coupled with the high numbers of crimes and deaths at Fort Hood, TX.<sup>20</sup> “[Leaders must] have the human decency to show compassion for our teammates and to look out for the best interests of our Soldiers.”<sup>21</sup>

According to GEN (Retired) Carter Ham, many senior commanders make the same failures as those identified in the Fort Hood report.<sup>22</sup> GEN Ham

cautioned leaders at every level to ensure they properly resourced sexual harassment/assault response and prevention offices as well as “legal staffs and investigative staffs.”<sup>23</sup> Clearly, judge advocates and their associated staff are vital to ensuring proper stewardship of the military profession.

Soldiers deserve a justice system that creates and enforces appropriate standards of ethical and legal conduct. They must trust that their commanders will investigate allegations of misconduct impartially and will fairly and uniformly discipline those who violate the rules.

Judge advocates are often officially appointed as the formal ethics adviser to the command. They also play a critical advisory role in the investigative process and actively participate in military-justice administration. For a holistic picture of the organization, the legal section can provide essential insight to commanders and their staffs on processing timelines and trends of indiscipline. Together, commanders and their legal advisers can overcome the challenge of broken trust and continue winning the nation's wars while stewarding our profession.<sup>24</sup>

## Principled counsel

The former Judge Advocate General of the U.S. Army, LTG (Retired) Charles Pede, called principled counsel “the constant we drumbeat as a corps.”<sup>25</sup> Principled counsel is “professional advice on law and policy ... effectively communicated with appropriate candor and moral courage, that influences informed decisions.”<sup>26</sup>

Credible legal advisers speak truth to power.<sup>27</sup> While other staff sections are designed for mission accomplishment (for example, the S-1 offers human-resources solutions, while the S-4 delivers logistics results and so on), the judge advocate is uniquely empowered to advise on a legally sufficient “yes” – or in rare cases, a “no” (such as when law or policy forbids a proposal).<sup>28</sup> Frequently, the legal adviser must be the voice of caution in the face of momentum-gathering groupthink.<sup>29</sup> Ultimately, the legal adviser wants to achieve the commander's vision while avoiding poor decisions that endanger careers and erode the

Army's credibility with the public.

Judge advocates provide value to the command by offering comprehensive legal advice that is timely and accurate.<sup>30</sup> On average, the legal adviser, along with the unit physician, is the most highly educated person on a commander's staff. Mind you, this does not necessarily mean the attorney is the smartest person in the room – but it does mean he or she has extensive experience in researching complex issues quickly and providing legal advice based on the latest laws, regulations and other applicable authorities.

Commanders do not want advice that is quick and wrong; they want their staffs to provide rapid, accurate analysis. LTG Pede liked to say such advice must be “expert, well-researched and delivered at the speed of war.”<sup>31</sup>

Military attorneys are not just legal advisers but also trusted counselors and advocates.<sup>32</sup> As BG (Retired) Richard Gross, former legal counsel to the Chairman of the Joint Chiefs of Staff, put it, “Legal counsel is two words: ‘legal’ and ‘counsel.’”<sup>33</sup> Commanders count on their judge advocates not only for legal opinions but non-legal guidance as well.<sup>34</sup> Judge advocates are in the problem-solving business, guiding our clients through personal and professional difficulties in addition to giving professional advice.<sup>35</sup>

The judge advocate can be a trusted sounding board for commanders and staff alike. I have often been in the room with commanders as they agonized over a decision – and not always a legal one. Principled counsel requires the critical character attribute of empathy to connect with others when they are vulnerable and to offer candid advice.<sup>36</sup>

The art of communication is sometimes overlooked in the profession of arms.<sup>37</sup> Judge advocates are professional communicators and as such have much to offer in not only their legal advice but in helping others with staff work.<sup>38</sup> In the movie *Office Space*, the “two Bobs” ask employee Tom Smykowski what value he provides to the company. Flustered, he angrily erupts, “I have people skills! I am good at dealing with people!”<sup>39</sup>

Your judge advocate has people skills, too. No matter the issue, your attorney may have valuable input. Give us a call!

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## Notes

<sup>1</sup> *Office Space*, directed by Mike Judge, 20<sup>th</sup> Century Fox, 1999.

<sup>2</sup> Susan Landrum, “The Most Frustrating Phrase in Law School: ‘It Depends,’” *Law School Success*, Aug. 14, 2014; <https://lawschoolacademicsuccess.com/2014/08/14/the-most-frustrating-phrase-in-law-school-it-depends/>.

<sup>3</sup> Field Manual (FM) 6-0, *Commander and Staff Organization and Operations*, Washington, DC: Headquarters Department of the Army, April 22, 2016.

<sup>4</sup> LTG (Retired) Charles N. Pede, “Putting Principled Counsel into Action,” *The Army Lawyer*, No. 4, Washington, DC: U.S. Army Judge Advocate General's Corps, 2020.

<sup>5</sup> FM 1-04, *Legal Support to Operations*, Washington, DC: Headquarters Department of the Army, June 8, 2020.

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

<sup>9</sup> MAJ Matt D. Montazzoli, “The Mosaic Principle (book review),” *The Army Lawyer*, No. 4, Washington, DC: U.S. Army Judge Advocate General's Corps, 2020.

<sup>10</sup> *Ibid.*

<sup>11</sup> Robert K. Greenleaf, *The Servant as Leader*, Cambridge, MA: Center for Applied Studies, 1970.

<sup>12</sup> LTC Scott Shaw, “Field Grade Officers Play Team Ball,” *The Field Grade Leader*, June 12, 2018; <http://fieldgradeleader.themilitaryleader.com/grad-week-shaw/>.

<sup>13</sup> LTC David Dunphy, “The Iron Major Survival Guide, Version 2,” *The Military Leader*, June 16, 2014; <https://themilitaryleader.com/iron-major-survival-guide-v2/#respond>.

<sup>14</sup> Edward Hirsch Levi, “An Introduction to Legal Reasoning,” *The University of Chicago Law Review* 15, No. 3, 1948.

<sup>15</sup> Pede.

<sup>16</sup> Army Doctrine Publication (ADP) 6-22, *Army Leadership and the Profession*, Washington, DC: Headquarters Department of the Army, Nov. 25, 2019.

<sup>17</sup> *Ibid.*

<sup>18</sup> *Ibid.*

<sup>19</sup> ADP 1, *The Army Profession*, Washington, DC: Headquarters Department of the Army, June 14, 2015 (superseded).

<sup>20</sup> U.S. Department of Defense, “Transcript: Army Leaders and Committee Members Brief Reporters on Findings and Recommendations of the Fort Hood Independent Review Committee,” Dec. 8, 2020; <https://www.defense.gov/Newsroom/Transcripts/Transcript/>

[Article/2440803/army-leaders-and-committee-members-brief-reporters-on-findings-and-recommendati/](https://www.army.mil/article/2440803/army-leaders-and-committee-members-brief-reporters-on-findings-and-recommendati/).

<sup>21</sup> Ibid.

<sup>22</sup> GEN (Retired) Carter F. Ham, "After Fort Hood, the U.S. Army Will Succeed or Fail on Trust," *War on the Rocks*, Dec. 23, 2020; <https://warontherocks.com/2020/12/after-fort-hood-the-u-s-army-will-succeed-or-fail-on-trust/>.

<sup>23</sup> Ibid.

<sup>24</sup> "Transcript: Army Leaders and Committee Members Brief Reporters on Findings and Recommendations of the Fort Hood Independent Review Committee," supra Note 20.

<sup>25</sup> Pede.

<sup>26</sup> COL Russell N. Parson and LTC Patrick L. Bryan, "Navigation from the Leadership Center," *The Army Lawyer*, No. 6, Washington, DC: U.S. Army Judge Advocate General's Corps, 2019.

<sup>27</sup> BG (Retired) Rich Gross, "Find Your Yoda: Ten Rules for Being a Rock-Star Operational Attorney," *The Army Lawyer*, No. 1, Washington, DC: U.S. Army Judge

## ACRONYM QUICK-SCAN

**ADP** – Army doctrine publication

**FM** – field manual

**JAGC** – Judge Advocate General's Corps

**MDMP** – military decision-making process

**PAO** – public-affairs officer

Advocate General's Corps, 2019.

<sup>28</sup> BG Joseph B. Berger and MAJ Courtney M. Cohen, "The Critical Character Attribute of Empathy," *The Army Lawyer*, No. 6, Washington, DC: U.S. Army Judge Advocate General's Corps, 2019.

<sup>29</sup> MG Stuart W. Risch, "Resilience Is a Shared Responsibility," *The Army Lawyer*, No. 6, Washington, DC: U.S. Army Judge Advocate General's Corps, 2019.

<sup>30</sup> BG (Retired) Charles N. Pede, "Communication is the Key – Tips for the Judge Advocate, Staff Officer and Leader," *The Army Lawyer*, Washington, DC: U.S. Army Judge Advocate General's Corps, June 2016.

<sup>31</sup> Ibid.

<sup>32</sup> FM 1-04, *Legal Support to Operations*.

<sup>33</sup> Gross, supra Note 27.

<sup>34</sup> Ibid.

<sup>35</sup> MG Risch. As BG Gross notes, though, "When you are giving a legal opinion, you are the only one on the staff qualified to do that, and you ought to make that clear to folks without being a jerk. However, when giving non-legal advice or counsel, you are one of many advisers, so keep that in mind."

<sup>36</sup> Berger and Cohen.

<sup>37</sup> Pede.

<sup>38</sup> Ibid.

<sup>39</sup> *Office Space*.



Reconnaissance is continuous. (From the Maneuver Center of Excellence "Fundamentals of Reconnaissance" poster series, <https://www.benning.army.mil/armor/fundamentals/RF-6.html>)

# COBRA COMMENTS



## Sustaining a Cavalry Troop During Continuous Operations

by 1SG Martin G. Seal, 1SG William L. Randall and SGM Rocky T. Kunkel

Effective sustainment of the cavalry troop while conducting continuous operations is a critical task that directly affects the ability of the troop and squadron to conduct reconnaissance and security operations in support of the brigade combat team (BCT). Although sustainment operations are seemingly straightforward and relatively simple, the complexity of conducting sustainment operations while in contact and at operational distances can quickly exceed the abilities of most troops.

At the National Training Center (NTC), Fort Irwin, CA, the ability of the troop first sergeant and executive officer to effectively plan, manage and react to sustainment requirements directly impacts the cavalry troop's ability to project and extend its capabilities to the fullest extent of its operational reach.

### Troop sustainment: a doctrinal framework

The cavalry-troop executive officer develops the sustainment plan in line with the squadron's sustainment plan. The first sergeant executes the troop's logistical plan. Sustainment reporting begins at the squad level with squad leaders identifying the squad's consumption of all classes of supply; identifying required supplies or repair parts; and reporting these needs to the platoon sergeant.

When he receives these reports, the platoon sergeant compiles the platoon requests and submits the platoon logistics-status report (LOGSTAT) to the troop executive officer. Handling the LOGSTAT then follows these steps:

- The troop executive officer compiles LOGSTAT reports from all subordinate elements and generates the troop LOGSTAT.

- Before it is submitted to the squadron, the troop LOGSTAT is reviewed and proofed by the troop first sergeant, who – among other duties – provides the executive officer with input pertaining to current and anticipated consumption and expenditure rates of all classes of supply.
- Finally, the completed LOGSTAT report is submitted to the squadron combat-trains command post (CTCP) over the squadron administrative and logistics (A&L) net or digitally to a designated system at the CTCP. The receipt and subsequent distribution of supplies generally follows a reverse sequence of the logistics-reporting flow. When they receive the troop LOGSTAT, the squadron S-4, troop supply sergeant and CTCP personnel work to create the logistics package (LOGPAC) that will fill the troop's needs. This package is distributed to the troop through the squadron's LOGPAC operations. The squadron LOGPAC moves from the CTCP under the control of a squadron S-4 representative to the logistics-release point (LRP), where the troop first sergeant receives it.

From the LRP, the first sergeant

escorts the LOGPAC to a predetermined location to resupply the troop. Upon completion of resupply operations, the first sergeant returns the LOGPAC to the LRP and delivers to the S-4 representative any more required reports or documents (LOGSTATs, maintenance documents, etc.)

From the LRP, the LOGPAC again falls under the control of the S-4 representative and returns to the CTCP to prepare for future operations.

### Systemic failures, best practices

Reconnaissance formations at NTC face a number of issues that prevent the effective execution of troop-level sustainment operations. Lacking proper sustainment, troops conduct ineffective or incomplete reconnaissance operations in support of the BCT. Most organizations that struggle with effective sustainment lack an understanding and mastery of fundamental sustainment practices.

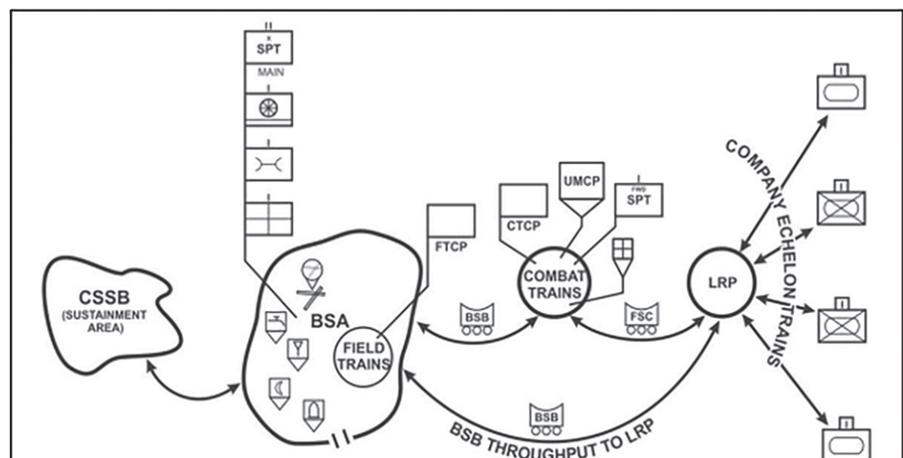


Figure 1. Notional battalion concept of support. (Adapted from Figure 9-1, Field Manual 3-96, Brigade Combat Team)

## Troop LOGSTAT reporting, commodity tracking

Central to the troop's effective sustainment is troop leadership's ability to understand its logistical needs. This understanding is developed and maintained through codified reporting formats and timelines. Many organizations fail to establish LOGSTAT report formats and reporting timelines, which influences troop leadership's ability to identify and address sustainment needs.

Failing to create, distribute and practice a formal LOGSTAT format results in:

- Reports received by the troop executive officer through various media and in inconsistent formats, preventing effective projection of sustainment needs.
- The lack of standardized reporting results in the troop receiving LOGPACs that do not accurately address the troop's needs.

Successful organizations ground their sustainment reporting in their standard operating procedures (SOPs). A best practice includes a published LOGSTAT format across the squadron. The use of this common document during home-station training will build confidence in the squadron's sustainment plan.

Employing the established LOGSTAT format during training enables the troop's first sergeant and executive officer to establish historic consumption rates for all classes of supply and to identify maintenance trends within the organization.

Accumulating this historical data enables the effective projection of sustainment needs beyond the immediate on-hand levels. This historic consumption data aids when platoons fail to provide LOGSTATs, allowing the executive officer to submit a reasonably accurate request.

Effective organizations also send their LOGSTAT at regular intervals, which may include specific times (battle-rhythm reporting) or specific actions, such as after contact, after movement or at a specified time before mission execution.

## Communicating sustainment needs

Developing, refining and using an established LOGSTAT format at troop level streamlines sustainment reporting and enables effective sustainment projection and planning. These efficiencies, however, are immediately lost if the troop cannot effectively communicate these logistical needs to the squadron. The identification and formalization of the logistics reporting chain is critical to the troop's ability to sustain its operations. Troops that are unsuccessful at communicating their sustainment needs often fail in establishing the communications link between themselves and their target audience.

This communication failure manifests itself at NTC in one of several ways:

- Troop command posts are outside frequency-modulation (FM) communications range;
- Digital reports are not sent or received by the correct recipient; or
- The troop fails to take action to adequately represent its logistics needs through face-to-face meetings at LRPs.

Communication with the squadron is the responsibility of the troop command post (CP). This communication imperative extends itself beyond combat reports and updates and includes logistical and sustainment reporting. Troop CPs must prioritize communication with the CTCP and sustainment representatives across the squadron's primary, alternate, contingency and emergency plan.

The troop must give deliberate focus and effort to ensure it has a reliable and redundant means of communicating its LOGSTAT to the CTCP, including the allocation of communications equipment such as dedicated radios and long-range antennae (OE-245, AB-1386/8 Quick-Antenna Mast System, etc.) for use on the squadron A&L net. If the troop identifies that it has moved beyond voice-communication ranges, it must take immediate action to either re-establish this communications link or shift to an alternate method of communications.

Digital reporting of LOGSTATs is

effective at defeating long-distance communication challenges and provides the recipient the ability to refer to reported information after the initial transmission. However, the squadron sustainment enterprise must understand the established digital-reporting flow. Immediately communicate to all elements changes to the reporting flow, such as a change to the Joint Capabilities Release/Joint Battle Command-Platform receiving reports.

Furthermore, troops must ensure the intended recipient receives their reports, either by following up on their report or by positive response from the receiving element.

Finally, troops are often too quick to accept denial of requested commodities. The troop must first understand if the requested commodity is a "nice to have" or a "need to have" and must act accordingly. If the denied commodity is critical to the troop's ability to maintain its operational pace, the troop's first sergeant must be prepared to lobby on behalf of his or her troop to obtain the commodity. Most often this can be accomplished through in-person dialogue and collaborative problem-solving; making concession for the responsibility to transport or secure the commodity can greatly increase the troop's success in receiving mission-critical supplies to enable continued operations.

## Training in tactical environments

NTC provides training units with the opportunity to conduct tactical operations in unfamiliar terrain under exceptionally challenging environmental conditions. Units that arrive at NTC unpracticed in conducting tactical-resupply operations face an immediate challenge when attempting to conduct LRP operations under combat conditions. These challenges originate the training unit's approach to resupply operations during home-station training and directly correlate to its ability to conduct successful operations at NTC. Troops that fail to address tactical resupply during home-station training most often have failed to conduct movement across unfamiliar open terrain, movement during periods of limited visibility and forced re-

liance on tactical communications.

Effective tactical resupply operations begin with informed and effective planning for the conduct of resupply operations. Troop first sergeants must understand their formations' ability to tactically move from the troop CP to the LRP site. To achieve this, first sergeants must conduct detailed route planning and conduct accurate time-distance analysis.

Soldiers conducting the LRP must train mounted land navigation and movement under limited-visibility conditions, including at night while using night optical devices. Addressing these training needs during home-station training enables the first sergeant to understand the time required to conduct a movement over a specified distance and enables accurate planning.

The troop must also understand and rehearse LRP link-up procedures. This includes near- and far-recognition signal, FM-radio communication and frequencies, and methods to re-establish communications and react to potential enemy contact. To enable effective and timely link-up at the LRP, it is critical to conduct rehearsals during home-station training with the squadron's forward-support company and distribution platoon to ensure a common understanding of the SOP.

## Resupply operations: making playbook

The most critical portion of resupplying the cavalry troop is the execution of resupply operations at troop level. Units that develop SOPs and create a "playbook" for resupply operations before their arrival at NTC gain valuable time and reduce their operational risk while establishing the troop resupply point. Troop personnel must understand the methods of resupply, tailgate, service station or hybrid, and the troop procedures for conducting the resupply operation. Setting conditions prior to the arrival of the first sergeant and LOGPAC to the resupply point allows the troop to conduct rapid resupply operations and resume reconnaissance or security operations.

Similar to movement to the LRP, success at the troop resupply point begins in the initial planning. Prior to

departing to the LRP, the troop first sergeant must select a location for the resupply to occur, determine the method of resupply and establish an easily defined trigger for platoons to begin movement to the resupply point. The first sergeant must also provide the platoons with any more coordinating instructions such as the type and quantity of commodities forecasted to arrive before execution to ensure rapid resupply operations.

The troop must establish detailed SOPs that address the conduct of the resupply operations. These SOPs include the flow of vehicles and equipment through the resupply point and detail where specific commodities will be located, also identifying methods of marking for individual troops (i.e., a color system). This creates a common understanding of the sequence of events and allows vehicle crews to prepare to rapidly upload and download supplies and dunnage in a specified order.

Also, the troop SOP must address how platoons and other subordinate elements will cycle their equipment through the resupply point. This provides subordinate elements with a framework to ensure continued reconnaissance or security while cycling individual vehicles or squads out of contact to conduct resupply. Establishing effective triggers for movement ensures that the troop is prepared to receive the resupply when the LOGPAC arrives with the first sergeant. These triggers should provide enough time for the subordinate elements to move equipment and personnel to the resupply point and stage for resupply operations before the first sergeant arrives, enabling immediate resupply once the resupply point is established.

Efficient and timely execution of the troop-resupply operation ensures that all required commodities are received from the LOGPAC and provides the troop with more time to address any unforeseen issues without the risk of desynchronizing the larger squadron operation by exceeding the LOGPAC timeline. Exceeding the LOGPAC timeline has second- and third-order effects, starting with the troop's not executing its assigned mission on time. The logisticians will fail to meet their

resupply timeline at the brigade-support area (BSA), further frustrating the division timeline for sustaining the operation.

## Takeaway

Effective sustainment of the cavalry troop enables the unit to extend its operational reach and provide the BCT with continued reconnaissance or security forward of the main body. Accomplishing these tasks effectively and efficiently is central to the troop's ability to shape BCT operations and be prepared for operations.

Troops that can successfully conduct sustainment and resupply operations place an increased importance on fundamental tasks such as developing SOPs; ensuring continuous and effective communication; and establishing clear and concise reporting procedures to enable their sustainment. Employing these skills during home-station training and refining SOPs based on observations and lessons-learned enables the troop to master the fundamental task of sustainment.

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include two Meritorious Service Medals.

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194<sup>th</sup> Armor Brigade, Fort Benning, GA. Previous assignments include O/C/T, Operations Group, Fort Irwin, CA; brigade first sergeant, assigned to HHC, 1<sup>st</sup> ABCT, 1<sup>st</sup> Cavalry Division, Fort Hood, TX; first sergeant, tank company, 2-8 Cavalry, 1<sup>st</sup> ABCT, Fort Hood; and platoon sergeant, 2-8 Cav, 1<sup>st</sup> ABCT, Fort Hood. His military schooling includes the Sergeants Major Academy, Common Faculty Instructor Development Course, Abrams Master Gunner Course, Senior Leader's Course, Drill Sergeant School, Basic Instructor Training, Mine-Resistant Ambush-Protected Vehicle Course, Combatives Level II, Stryker Leader's Course, ALC, Basic Leader's Course, Armorer Course and One-Station Unit Training (19K). SGM Kunkel has a bachelor's of arts degree in leadership and workforce development from the Army's Command and General Staff College. His awards and honors include the Meritorious Service Medal.

## ACRONYM QUICK-SCAN

**A&L** – administrative and logistics  
**ABCT** – armored brigade combat team  
**ALC** – Advanced Leader's Course  
**BCT** – brigade combat team  
**BSA** – brigade-support area  
**BSB** – brigade-support battalion  
**CP** – command post  
**CSSB** – combat-sustainment support battalion  
**CTCP** – combat-trains command post  
**FM** – frequency modulation  
**FTCP** – field-trains command post  
**HHC** – headquarters and headquarters company  
**LOGPAC** – logistics package  
**LOGSTAT** – logistics status  
**LRP** – logistics-release point  
**Main** – main command post  
**NTC** – National Training Center  
**O/C/T** – observer / coach / trainer  
**SOP** – standard operating procedures  
**SPT** – support  
**UMCP** – unit-maintenance collection point



## Honoring our Armor and Cavalry Medal of Honor Heroes

Derived from Center of Military History information provided at <https://history.army.mil/html/moh/civwaral.html>. Listed alphabetically. Note: Asterisk in the citation indicates the award was given posthumously.

**MARSH, CHARLES H. PVT**  
Unit: Company D, 1st Connecticut Cavalry. Place and date of action: Back Creek Valley, VA, July 31, 1864. Entered service: New Milford, CT. Born: Milford, CT. Date of issue: Jan. 23, 1865. Citation: Capture of flag and its bearer.

**McELHINNY, SAMUEL O. PVT**  
Unit: Company A, 2nd West Virginia Cavalry. Place and date of action: Sailors Creek, VA, April 6, 1865. Entered service: Point Pleasant, WV. Born: Meigs County, OH. Date of issue: May 3, 1865. Citation: Capture of flag.

**McENROE, PATRICK H. SGT**  
Unit: Company D, 6th New York Cavalry. Place and date of action: Winchester, VA, Sept. 19, 1864. Entered service: New York. Born: Ireland. Date of issue: Sept. 27, 1864. Citation: Capture of colors of 36th Virginia Infantry (CSA).

**McKEEVER, MICHAEL PVT**  
Unit: Company K, 5th Pennsylvania Cavalry. Place and date of action: Burnt Ordinary, VA, Jan. 19, 1863. Entered service: Philadelphia, PA. Born: Ireland. Date of issue: Aug. 2, 1897. Citation: Was one of a small scouting party that charged and routed a mounted force of the enemy six times their number. He led the charge in a most gallant and distinguished manner, going far beyond the call of duty.

**McWHORTER, WALTER F.**  
Rank and unit: Commissary sergeant, Company E, 3rd West Virginia Cavalry. Place and date of action: Sailors Creek, VA, April 6, 1865. Entered service: Harrison County, WV. Born: Lewis County, WV. Date of issue: May 3, 1865. Citation: Capture of flag of 6th Tennessee Infantry (CSA).

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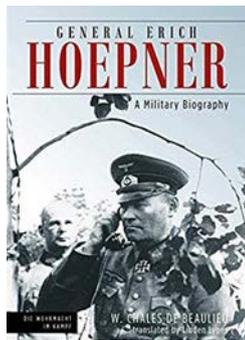
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# BOOK REVIEWS

**General Erich Hoepner: A Military Biography** by W. Chales de Beaulieu, translated by Linden Lyons; Havertown, PA: Casemate Publishers; 2021; 252 pages; \$45 hard cover.



With the United States' recent military shift from counterinsurgency operations to its more traditional role in large-scale ground-conflict operations (LSGCO), it stands to reason there will be renewed interest in examining the major conflicts of World War II. This examination should, of course, take advantage of accounts from the enemy combatant's perspective to ensure a holistic study of the battle or campaign at hand. **General Erich Hoepner: A Military Biography** provides the Wehrmacht's view of operational-level warfare in both the Eastern and Western European Theaters. While there are a number of important combat lessons within its pages, **Hoepner** is a deeply flawed book from an ethical-leadership perspective.

True, Lyons provides the first English-language translation of the original work by W. Chales de Beaulieu, who served as Hoepner's chief of staff during the German army's campaigns in Poland, France and Russia. Given his close professional relationship with Hoepner, de Beaulieu was afforded a unique position to observe both the man and his leadership in three theaters against three vastly different opponents. Throughout the work, de Beaulieu provides a balanced assessment of the Wehrmacht's performance in planning, resourcing and executing combined-arms warfare.

The reader may easily draw vital lessons-learned from the German experience, including the danger of arbitrarily changing assigned objectives or the importance of logistics and intelligence, surveillance and

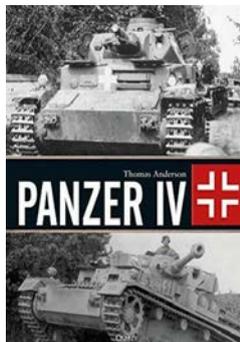
reconnaissance. Perhaps the most important takeaway is the absolute necessity in LSGCO of empowering subordinate commanders through mission command.

What is entirely missing from the book is discussion of Hoepner's documented war crimes, including close cooperation with the *einsatzgruppen* responsible for killing untold numbers of Jews or his implementation of the Commissar Order directing the summary execution of captured Russian political officers. While it is not surprising de Beaulieu would avoid mention of war crimes his commander committed, I am baffled that Lyons did not include these atrocities in his translation or supplementary notes. As both a professional military officer and an author, I find this oversight completely unacceptable – especially in a book endorsed by the Association of the U.S. Army.

The book's dust jacket, for example, describes Hoepner as "a man who was committed to the military profession, who possessed a strong sense of responsibility, and who was confident enough to exercise his free will." That is strong praise for a man responsible for the murder of noncombatants and political prisoners.

LTC CHRISTOPHER J. HEATHERLY

**Panzer IV** by Thomas Anderson; New York: Osprey Publishing; 2021; 304 pages, including photographs and bibliography; \$40.



The search for a solution to the stalemate of World War I created a desire for battlefield mobility. The Germans were in the forefront of an effort to create a force capable of dominating a given combat zone by maneuver and firepower. Thomas Anderson's latest work discusses the successes and

failures of the German endeavor to attain this endstate by focusing on the development and employment of the Panzer IV tank.

The Panzer IV was one of six distinctly different tanks manufactured by the Germans during World War II. It was the only system to remain in production throughout the war. The author begins by explaining the pre-war development of the Panzer IV. He arranges each chapter starting with the 1939 invasion of Poland by using a standard format that provides an overview of the battle, the organization of the German tank company and battalion in the action, the total number of German tanks by type involved, the specific function of the Panzer IV and after-action comments. This same format is followed for chapters addressing the battlefield actions in Europe, Russia, Italy and North Africa.

The Panzer IV was initially envisioned as a firepower-support vehicle to augment the actions of the 37mm-equipped Panzer III. Armed with a short-barreled 75mm main gun, the tank would assist the more maneuverable Panzer IIIs by engaging enemy field fortifications and tanks. The standard tank battalion going into Poland consisted of three companies, each with 14 Panzer IIIs and one 14-vehicle Panzer IV-equipped company. Battlefield experiences would alter this basic formation throughout the war.

As Anderson details, by the end of the war the Germans produced 8,500 Panzer IVs in nine versions. Each variant was designed by a letter beginning with "A" and ending with the letter "J." The vehicle was produced by the Krupp Industrial Consortium. The initial tank weighed 24 tons, with succeeding models weighing as much as 30 tons.

Krupp designed the initial version with a torsion-bar suspension. However, due to wartime constraints, this concept was scrapped in favor of a leaf-spring double-bogie suspension system with eight rubber roadwheels per side. Each model series was powered

by a Maybach 12-cylinder 300-horsepower engine. This gasoline engine allowed the tank to reach speeds of up to 25 mph. A 53-gallon gas tank provided the tank with an operational range of some 200 miles.

The five-man crew consisted of a tank commander, gunner, loader, driver and bow machine-gunner operator who also manned the radio system. Based on combat actions against the Russian T34 and KV-1, the short-barreled 75mm main gun was replaced by a longer-barreled 75mm. This alteration caused a major adjustment in the construction process due to the main gun's recoil length. It was too great for the tank's turret. This resulted in the shortening of the recoil mechanism and chamber. When fielded, the Panzer IV carried a basic load of 28 main gun rounds. The longer main gun allowed the tank to engage personnel and armored targets at a greater range and velocity.

In spite of the designers' efforts to conserve weight, the weight of the new 75mm main gun made the vehicle nose-heavy to such an extent that the forward-suspension springs were under constant compression. This resulted in the tank often enduring a complete failure of the drive sprockets. The many photos depicting the catastrophic final drive failure, along with recovery efforts, effectively supplement the narrative. To return to battle, the tank required a detailed recovery-and-repair effort. As the war progressed, the speed and shock power by the Allies applied to the Germans made battlefield recovery and repair almost impossible. A great number of recoverable vehicles had to be abandoned, which further diminished the effectiveness of the Panzer IV. As Anderson notes, when the "H" model arrived in 1944, "the tank was clearly outgunned" by superior Soviet and Allied weapons systems.

This is a well-organized, comprehensive work on the development and employment of the Panzer IV. Although the book contains no maps, the author's description of German campaigns during World War II is impressive. By using a standard chapter format, the author allows the reader to easily compare information for each

campaign. Anderson's comments on the effectiveness of German battlefield after-action comments on Panzer IV production and employment are noteworthy.

This book is highly recommended for maneuver commanders. By reviewing the employment of this tank, maneuver commanders will gain a greater appreciation for the value of after-action reviews that improve weapons, tactics and techniques, along with a caution on manufacturing and fielding too many diverse systems.

**COL (R) D.J. JUDGE**

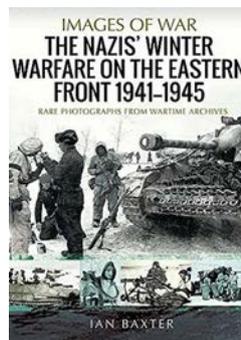
*The Nazis' Winter Warfare on the Eastern Front 1941-1945: Rare Photographs from Wartime Archives (Images of War)* by

Ian Baxter; United Kingdom: Pen & Sword Military; 2021; 160 pages with appendices and photographs; \$19.74 paperback.

Fieldcraft. Much like logistics, fieldcraft is neither sexy nor perhaps given the due respect it should be afforded in military literature. When you are cold, wet and immobilized, it begins to matter, and matter rapidly.

In the history of the Eastern Front from 1941-1945, most histories vividly paint the desperate plight of the Wehrmacht to survive the first winter of 1941-42 and to not disintegrate at the seams. Then we further get told of the epic sufferings of Sixth Army in the Stalingrad Cauldron and those battered satellite armies trying to find shelter while retreating.

But from September 1942 onward, most of the Wehrmacht was not in Stalingrad. How did the average German soldier survive, adapt and live in the harsh and often forbidding and primitive conditions of the occupied territories of the Soviet Union? Ian Baxter's *Images of War: The Nazis' Winter Warfare on the Eastern Front 1941-1945* will answer the questions



of how Wehrmacht survived, adapted and lived by both a photographic archive and generally germane writing to add more to the photographic archive.

In all armies, fieldcraft is almost a closely guarded secret, from how to survive in the field to how to service your weapon and your armored fighting vehicle or other vehicle. But fieldcraft is more than these things. I recall sheepishly how my first platoon sergeant in the Army extolled the virtues of Avon Skin So Soft to me. I was **cer-tain** it was a joke on me, like being sent to the battalion maintenance officer for "a box of reticles." We found out, not surprisingly, that our tank-platoon sergeant – an infantryman in Vietnam – knew about fieldcraft.

Baxter starts out on familiar grounds, showing early on the primitive road conditions the Wehrmacht endured. We get treated to pictures of summer roads that are more torrents of mud, to be followed by worse and more enduring conditions of mud in the Russian Rasputin. Yet unlike an Opel Blitz mired in mud up past its axles, Baxter pulls this book on winter warfare out of that trough and offers up such fascinating and interesting material that the book actually becomes a page-turner due to the freshness and overall organization of the material.

The overall organization is in a chronological fashion that works well with the material. It is fascinating to watch how the German soldier went from often looking like a gypsy in the Winter of 1941-42, wearing anything he could as the war progressed. Both men and equipment suffered from the lack of standardized camouflage materials, so the book illustrates the ingenuity of German soldiers in field-expedient measures to try and blend in with their snowy environment. The best parts are easily the diagrams from the Wehrmacht's *Paperback for the Winter War*, a compilation of fieldcraft tips disseminated to the field.

But seeing pictures of German soldiers building igloos for shelter? Now that said volumes about the need to overcome and adapt – or die.

What Baxter could have addressed in even a passing fashion are the issues

of railroads and Balack's hunger plan, with its goal of killing off much of the Soviet population via starvation so the Wehrmacht could live off the land. The Wehrmacht survived off the land in much of the occupied territories, harkening back to the days of foraging from Caesar to Napoleon. As well, a bit more on something other than the mobile kitchens, documenting the goulash wagons would have added to the depth of this slim volume.

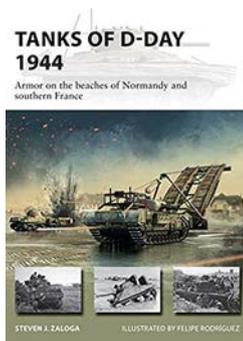
But his overlooking of the Deutsche Reichsbahn, its travails in 1941 and subsequent adaptation to keep the trains running was worthy of some space. That first winter, Deutsche Reichsbahn boilers froze up as the piles running outside the engines froze and these steam engines, not winterized at all, simply became like the Wehrmacht's equipment: so much useless junk.

Baxter also has the habit of sometimes throwing out unsubstantiated "facts" that aren't fully correct such as "The objective of Summer 1942 was to take Stalingrad."

Baxter's narrow focus on fieldcraft, and even more so how to adapt and fight in harsh climates, will add to your overall knowledge in spite of this volume's slimness. Baxter excels at putting together a compelling photographic essay of sorts, again using in most cases many heretofore-unseen pictures. But the real stars of Baxter's book are the diagrams of how to survive in the field. Those alone make this volume a fascinating read and a great addition to your personal library.

**DR. (LTC) ROBERT G. SMITH**

***Tanks of D-Day 1944: Armor on the Beaches of Normandy and Southern France*** by Steven Zaloga; Oxford, United Kingdom: Osprey Publishing; 2021; 48 pages; \$18.26 paperback or \$9.99 Kindle.



Dr. Steven Zaloga's grasp of low-level

combined-arms tactics sets him apart from most standard military historians. One of his newest books, ***Tanks of D-Day 1944: Armor on the Beaches of Normandy and Southern France***, is worth adding to a Soldier's library.

***Tanks of D-Day 1944*** was published as part of Osprey Books' "Vanguard Series," which focuses on the development and use of weapons and weapon systems. Like other Vanguard Series books, Zaloga's work contains many photographs of tanks in action and has many carefully drawn color illustrations by Felipe Rodriguez. These drawings are rendered in great detail and show unit markings and identification numbers. If you are a hobbyist or modeler of the tanks of this period, this book is for you.

But this is more than just a book of great pictures and excellent drawings. Zaloga tells the story of the development of specialized armor for the invasions of northwest Europe by the British – and, later, the Americans. Responding to their disaster at Dieppe in 1942, the British put great effort and imagination into specialty tanks – or "funnies" – that were designed to clear mines, cross sand or ditches, and take out bunkers. Many historians have criticized the U.S. Army for lacking imagination and not developing such specialized armor.

Zaloga tells a more nuanced story. U.S. officers were actually very interested in specialized armor and went to considerable effort to develop them. Both the British and the Americans embraced "DD Tanks," capable of swimming ashore. But as Zaloga recounts, these were not particularly successful. Better, it seemed, was simply to deliver wading tanks to the beach by landing craft.

Zaloga also describes the effective (but largely unknown) American use of dozer tanks, which were part of the U.S. engineer battalions' breaching teams. Indeed, the dozers were as effective in many ways as the "funnies" and made great contributions to the success of the landings.

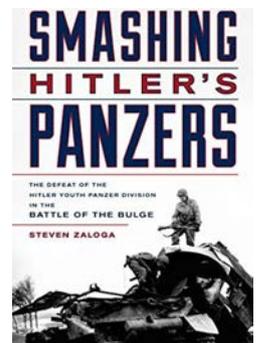
To my mind, the most interesting part of the book was Zaloga's detailed description of the activities of the British, Canadian and American tank units,

both on D-Day and in the landings in southern France. Most major histories overlook their contributions. Zaloga chronicles in impressive detail the actions of the British and American armor at each beach, and notes the specific German resistance nests and bunkers that they destroyed or suppressed.

Mobile, protected firepower played a critical role in the Allied success during these landings. Without it, the Allies would have had a much tougher time getting off the beaches. This small book tells that story well.

**COL (R) WILLIAM R. BETSON**

***Smashing Hitler's Panzers: The Defeat of the Hitler Youth Panzer Division in the Battle of the Bulge*** by Steven Zaloga; Lanham, MD, Stackpole Books; 2019; 384 pages; \$21.49 Kindle or \$29.95 hardcover.



Dr. Steven Zaloga is one of the most prolific of our current military historians. An expert on World War II and on military technology, his grasp of low-level combined-arms tactics sets him apart from most standard military historians and makes his books of particular interest to professional Soldiers. One of his newest works, ***Smashing Hitler's Panzers: The Defeat of the Hitler Youth Panzer Division in the Battle of the Bulge***, is one of the most important books written in years about the Battle of the Bulge. It's worth adding to any professional soldier's library.

***Smashing Hitler's Panzers*** recounts the defeat of the German 12<sup>th</sup> SS Panzer Division in the Elsenborn Ridge area during the Battle of the Bulge. Zaloga's central thesis is that the defeat of the German I SS Panzer Corps by the U.S. 2<sup>nd</sup> and 99<sup>th</sup> Infantry Divisions was the critical action in the battle – more important than the better-known stand by 101<sup>st</sup> Airborne Division at Bastogne. The I SS Panzer Corps was

the German main effort in the offensive, and once they realized that it had failed to achieve a swift breakthrough, the Germans essentially gave up on their ambitious aims for the offensive. Indeed, not only had their main effort failed, it had essentially gotten nowhere after taking crippling losses. Zaloga presents this argument convincingly.

He goes on to explain in convincing detail the reasons for this failure. First, he provides a thorough review of the state of the German forces participating in the attack. Their infantry divisions were poorly trained, poorly led and haphazardly equipped. The I SS Corps' two panzer divisions were in better shape but were filled with replacements. Further, their panzer regiments were only at 50-percent strength. The Germans tried to make up for their tank shortage by assigning assault guns to the attacking divisions. But these vehicles were not well suited for offensive operations. Further, the Germans selected difficult, forested terrain served by few roads for this major attack, and traffic control bedeviled them throughout. They also failed to place engineers forward in their formations that might have helped. Finally, Zaloga notes that the Germans failed to reconnoiter, misusing their powerful reconnaissance units. German operational planning was simply poor.

Making heavy use of German sources, Zaloga carefully and clearly describes the execution of the attack. The Germans intended to lead with infantry divisions, whose mission was to punch a hole into the U.S. defenses, through which the panzer divisions would pass and exploit to the depth of the defense. Zaloga recounts how the green but well-trained and equipped 99<sup>th</sup> U.S. Infantry Division inflicted crippling losses on ill-conducted German infantry attacks. After their infantry failed, the author shows how the Germans had difficulty passing their armor through the infantry on the few forest roads.

This gave the veteran U.S. 2<sup>nd</sup> Infantry Division, very well led by MG Walter Robertson, enough time to set up in the twin villages of Krinkelt/Rocherath, situated behind the wooded area

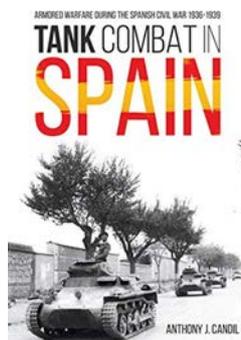
held by the 99<sup>th</sup>. When the 12<sup>th</sup> SS Panzer Division finally made their way through the woods into the open area in front of the twin villages, their panzer grenadiers were devastated by concentrated U.S. artillery fire; the 12<sup>th</sup> SS Panzer Regiment was effectively destroyed by U.S. tank, tank-destroyer and bazooka fire. Using multiple firsthand accounts from German and American soldiers, Zaloga describes this fighting with a clarity that one seldom finds in such narratives. Particularly interesting is his in-depth examination into what weapons knocked out German armor.

My only negative comment is that Zaloga does not examine the U.S. Army units involved to the level he does the German. For instance, he points out that German units had experienced great small-unit-leader turnover because of casualties. That was surely experienced by the U.S. forces as well. I would also like to have seen a more complete description of U.S. weaponry and organizations.

But this is a minor point. *Smashing Hitler's Panzers* is an important contribution to our understanding of the Battle of the Bulge and to the nature of combined-arms combat in World War II.

COL (R) WILLIAM R. BETSON

*Tank combat in Spain: armored warfare during the Spanish Civil War, 1936-1939* by Anthony J. Candil; Havertown, PA: Casemate Publishers; 2021; 264 pages; \$23.67 hardcover, \$15.99 Kindle.



With the onset of a new, multi-polar world order, the Great Powers are likely to use future battlefields in the developing world as research-and-development (R&D) laboratories for weapon systems and tactics. The Spanish Civil War offers a case study in what to expect and the lessons that can, and can't, be learned from intervention in

such conflicts.

The Spanish Civil War, remembered as "the last good cause," a dress rehearsal for World War II or the graveyard of idealism, was also the first major instance of Great Powers using a minor conflict as an R&D laboratory for new weapons and tactics. It could hardly have been otherwise, as industrialized-weapons R&D hardly existed before the mid-19<sup>th</sup> Century. Spain thus became a proving ground for evolving technologies, including tanks. This gives the war an importance beyond who won or lost.

Anthony Candil, a senior Spanish Army armor officer, recounts in considerable detail how Germany, Italy and Soviet Russia intervened in Spain, supplying troops and equipment to the warring sides. His footnotes and references are extensive, and the latter includes several citations from articles appearing in *ARMOR* in the 1980-90s.

Current-generation tanks, with training cadres and varying levels of logistical support, found their way to the combatants. Observers from many nations, including those like the United States and Great Britain who remained on the sidelines, drew conclusions about the value of tanks as an evolving technology, both in terms of capabilities and employment. Supplying late-model tanks to the Spanish Nationalist (Germany and Italy) and Republican (Russia) armies was a luxury not available when the tank was in its infancy during World War I. Mistakes made in combat, tank design and tactical failures did not pose a risk to the suppliers as they did to the belligerents. Often the wrong conclusions were drawn, even by those with combat experience.

These conclusions included assumptions about the tank's value as a weapons system. Franco, for example, employed his armor primarily in an infantry-support role; large, independent tank formations of battalion size or larger were a rarity during the nearly four years of conflict. Horse cavalry continued to be the primary scouting arm of both armies throughout the hostilities, and combined-arms operations were the exception, not the norm, despite its clear obsolescence.

Tactical employment of armor also suffered from uneven training of soldiers on both sides, most of whom were militia volunteers or conscripts. The Republicans also had to overcome linguistic differences among the many nationalities represented in their international brigades. Uneven training and tactical employment was also evident when German Condor Legion and Italian “volunteer” units engaged Republican militias and conscript formations. Internecine warfare between various Republican factions hobbled military planning and execution as factions ranging from social democrats to hard-line Communists fought each other for control of the Republic. Logistical support was often lacking, especially for Republican armor later in the war, as seaborne reinforcements were increasingly deflected by the Italian navy.

Nonetheless, some conclusions were drawn from this test of state-of-the-art weaponry against that of peer competitors. The Soviet T-26 tanks were so superior to the German Mark I and II tanks that the Nationalists offered bounties for captured enemy armor and ended the war with more T-26s than the defeated Republicans could muster. (Hemingway has the hero of *For Whom the Bell Tolls* mortally wounded by a Nationalist T-26.) Italian CV33/35 “tankettes” were clearly under-armored and outgunned from the start. Republican forces never bothered to use captured enemy armor the way their opponents did.

Despite what the battlefield showed, the Germans and Italians were not alarmed by Russian tank superiority and did not immediately step up development of comparable machines. Russian and Italian theories of deep battle were largely untested, and the Germans never fully implemented their blitzkrieg tactics.

The takeaway for the reader is that our weapons, even when crewed by our trainees – when operating on the far side of the world with austere logistic support and under commanders who may not fully understand their employment, in environments that may be chaotic – may not perform against peer competitors similarly hobbled by their clients’ performance

the way they would in a major war. Lessons drawn from such situations should try to isolate the constants, such as survivability and durability, mechanical reliability and individual tank-on-tank combat results. Doing so will help us avoid the mistakes made in learning the lessons of the Spanish Civil War.

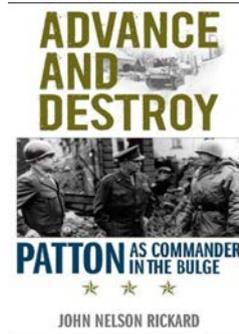
SFC (R) LLOYD A. CONWAY

**Advance and Destroy: Patton as Commander in the Bulge** by John Nelson Rickard; Lexington, KY: The University of Kentucky Press; 2011; 725 pages including

appendices, index, bibliography and notes; \$28.85 hardcover, \$27.01 paperback, \$24.49 Kindle.

**Advance and Destroy: Patton as Commander in the Bulge** by John Nelson Rickard at first glance appears to be yet another turgid work on Patton and the Bulge. As a World War II buff and military historian, I am fairly familiar with the Battle of the Bulge. Even more so, I have a good working knowledge of Patton’s counterattack into the German flank to relieve 101<sup>st</sup> Airborne at Bastogne. Or at least I thought I did. Most of the readers of **ARMOR** magazine will likely think they fall into a similar category. Instead, be forewarned as the reader – you will be continuously amazed at the breadth of detail the author brings to this subject, amassing facts and data into a sweeping narrative that at times feels like an avalanche.

This work is replete with lots (and we do mean *lots*) of maps and illustrations that will assist the reader in understanding American efforts and movements to relieve Bastogne. I found it helpful to go back and consult those, and my assumption is that most of us with more than a passing familiarity of the Bulge are really weak in understanding the critical road net to the south. The inclusion of these many good maps added immeasurably to my



understanding of the difficulties presented in this movement. For unlike the famous Left Hook of Operation Desert Storm, this movement-to-contact was conducted against a far deadlier foe.

Moreover, the movement was hindered by the nature of the road network, the weather and the demolitions conducted by U.S. Army engineers to deny the Germans easy axes of advance. It is this type of extra detail that makes this book stand out, as the author’s command of the subject makes you better grasp the operational complexities involved.

Operational complexities? Rickard’s work and explanation of the employment of towed U.S. artillery is masterful as well. The 105mm gun was the standard piece used for combat support but was generally positioned back somewhat, so its use and value were lessened in many movement-to-contact engagements where U.S. forces didn’t always have forward observers embedded. As well Rickard talks about how the 155mm Long Tom was used mainly as an interdiction weapon, so its utility per our doctrine was limited – plus consider Patton’s goal, as is stressed time and time again, was one of *speed*. Artillery and artillery prime-movers would have slowed the columns, as it would have also meant, as Rickard notes, the repositioning of ammo depots.

Rickard’s work in this area is close to if not masterful, noting that the American method of fighting via a preponderance of firepower often slowed the attack.

And therein lies the book’s small problem for many readers; it almost begins to feel either pedantic or overwhelming – take your choice. For although you cannot accuse the author of not knowing his subject, the author in fact perhaps knows it a little too well. Some small things would have helped the reader here, such as: at the front of the book, the author could have done something similar to what James Holland has been doing and give a list of the prominent figures who will appear and, even better, give a small thumbnail of the key ones as an appendix. This author with his

obvious knowledge and feel for the Bulge could easily have accomplished that, which would have upgraded this book from merely a very good book on Patton in the Bulge to source material for that aspect of the battle.

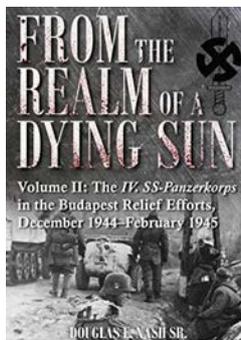
Nor does the author address that Patton's attack was perhaps more conventional than is often portrayed, more of units on-line vs. the slashing attack one might have expected of Patton. Was he following a directive from or espousing Eisenhower's broad-front concept here in an operational sense?

The first half of the book seems by far the more interesting and exciting, as it is indeed the tale of the dramatic rescue and relief of Bastogne. Yet Rickard executes a deft touch in making the post-relief of Bastogne section the most interesting, as shown by its heading "The Incomplete Victory." It is always easy to be a Monday morning type of quarterback, but there is no sense of that here. It is clear to me that Rickard's own military service in the armed forces of our Canadian ally gives him the feel that this should have been evident to those on the ground at that time.

The conclusion at first feels like **Advance and Destroy** has great detail but at times too much detail. Too much detail swallows up or at least obscures the narrative. Worse, the key points and any teachable moments seem subsumed in the backwash of an overly detailed accounting of how Patton prepared and fought Third Army in the Battle of the Bulge. Here our author knows so much that he has some difficulty not going so far down the rabbit hole as to create his own warren.

Yet despite that, the book, with just a little tighter editing, easily goes from merely good and interesting to quite fascinating, as the rich narrative and more disciplined detail would paint a new picture of the Bulge as we understand it, particularly the early chaotic days of the German offensive. Add in the fact that the author gives us extensive notes, a series of well-crafted appendices, bibliography and a deep index; this only adds to the overall total value of Rickard's work, which should find a place in your library, as it did mine.

*From the Realm of a Dying Sun. Volume II: The IV SS Panzerkorps in the Budapest Relief Efforts, December 1944 to February 1945* by Douglas E. Nash Sr.



Nash Sr.; Havertown, PA: Casemate Publishers; 2020; 552 pages illustrated appendices and endnotes; \$35 hardcover, \$22.95 Kindle, \$55.99 audio CD.

Douglas E. Nash Sr. returns to the subject of the IV SS Panzerkorps with **From the Realm of a Dying Sun. Volume II: The IV SS Panzerkorps in the Budapest Relief Efforts December 1944-February 1945**. As with Volume I of this trilogy, Volume II continues to be just as grim, gritty, yet engrossing at the tactical, operational and strategic levels as **Realm of a Dying Sun Volume I**. Many readers will have more familiarity with the overall thrust of this volume, particularly the Wehrmacht's Lake Balaton Offensive. What Nash does here, though, is to vividly expand the scope of all the German efforts to relieve the encircled garrison at Budapest with the IV SS Panzer Korps.

The IV SS Panzerkorps, after its successful series of tactical victories over the Red Army in the area of Northern Poland, specifically the defense of Warsaw, had shown itself to be the linchpin of defending the approaches to Berlin. Northern Poland is lovely tank country, and as such it simply seemed logical to have IV SS Panzerkorps defend ground it knew in both the tactical and operational sense. But when placed in the context of the impending Ardennes Offensive, the redeployment of IV SS Panzerkorps to Hungary for both military and political purposes made as much sense as anything did in the Third Reich's death throes. We noted in our review of Volume I of this trilogy that IV SS Panzerkorps was now fighting a war with very little chance of anything but

temporary tactical victories – with diminishing resources, combat strength and brittle but tactically proficient forces – yet the soldiers were still compelled to do their sworn duty. But SS-Obergruppenfuhrer Herbert Gille as IV SS Panzerkorps' commander had to wonder at the sensibility of beginning rail movement on Christmas Eve.

Nash relates how many of the panzers of IV SS Panzerkorps had already amassed more than 1,000 kilometers on their odometers. Tracks, transmissions and final drives were all in need of overhaul. SS Panzer Division Wiking would receive no new armored fighting vehicles until April 1945. Nash does an excellent job of detailing the various efforts to relieve Budapest and showing why they failed – their adversaries were terrain, weather, logistics, the Red Army, the political and military leadership of the Third Reich, and the steady diminution of German fighting power. Bodies in uniform are one thing, but trained infantry – and more pointedly, trained panzergrenadier – were not made overnight, despite an increasing quota of Luftwaffe replacements to fill the depleted ranks of Gille's command.

By the conclusion of the second volume of **From the Realm of a Dying Sun**, one professionally feels the pain of the leadership of IV SS Panzerkorps, who are hamstrung time and time again by the whims of the Fuhrer and his perceived political realities. Perceived political realities often markedly differ from the operational view of those at Ground Zero, the tip of the spear. Yet Nash notes that the leadership of IV SS Panzerkorps paid extraordinary attention to the retention of Hungarian oil wells and the small refineries in their operational sector, reminding one of how the Imperial Japanese Navy was tethered to the oil fields in the Dutch East Indies late in World War II. There was an ongoing realization that oil was indeed the femoral artery for the panzers, as Nash notes how operations often kicked off late due to late fuel deliveries.

The one thing one could have hoped for here with Nash's feel for the material was the what if: what if IV Panzerkorps hadn't been moved south to

deal with the pressing strategic dilemma of Hungary? That what if posits a fascinating counterfactual for the history of the late war period of the East Front. The likely outcome of that counterfactual is that IV SS Panzerkorps would have been most likely engulfed to little operational purpose regardless in the maelstrom that was the Soviet January 1945 Vistula Offensive.

This volume relies extensively, as Nash notes, on Army Group South's war diary and Armeegruppe Balck/6 Armee, which IV SS Panzerkorps was subordinate to in the efforts to relieve Budapest. If you gloss over the introduction, you'll miss Nash's contention that not only was IV SS Panzerkorps fighting the Red Army, it was also fighting a rearguard action against Hermann Balck.

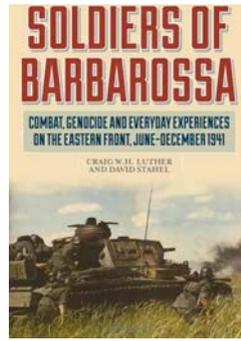
Nash's interpretation of the source record finds inexplicable Balck's argument that it was Gille's leadership that doomed all efforts to save Budapest, thereby deflecting Nash's implied thesis through his choice of records that it was more Balck's defective leadership that doomed all efforts – aside from any interference from the Fuhrer. In a period of the direst military necessity, the poisoned relationship between Balck and Gille, be it due to the antipathy between the Waffen SS and the Wehrmacht, or that Balck – heretofore a steady performer who was now perhaps out of his league in this command – was looking for a scapegoat is a theme that repeatedly has a negative impact itself down to operational levels.

Nash has without question produced another winner. It further amplifies in greater tactical detail the efforts of the Wehrmacht and IV SS Panzerkorps to produce strategic miracles. It is not for the casual reader per se but will reward those interested in how to continue to fight and produce meaningfully in a situation increasingly bereft of hope.

DR. (LTC) ROBERT G. SMITH

***Soldiers of Barbarossa: Combat, Genocide and Everyday Experiences on the Eastern Front, June-December 1941*** edited by Craig W.H. Luther and David Stahel; Lanham, MD: Stackpole

Books; 2020; 440 pages with appendices, notes, maps, photographs, bibliography and index; \$30.36 hard cover, \$28.99 Kindle.



Craig Luther and David Stahel have combined here in ***Soldiers of Barbarossa: Combat, Genocide, and Everyday Experiences on the Eastern Front, June-December 1941***. This small but engrossing volume works to bring to light how the German soldier perceived Operation Barbarossa, from pre-invasion to the evident collapse of Operation Typhoon. What strikes the reader immediately from the letters, diary and journal entries culled by these two historians is seemingly how much the German soldier spoke with nearly one voice across a gamut of subjects relative to the war and of operations impending and later ongoing against the Soviet Union.

It is easy to say these micro data points are just that, but Luther's and Stahel's work echoes much more of what we have read in popular histories and the volumes of the Nuremberg Tribunals. However, what comes across in these entries is that anything that contributes to victory and protecting the German folk on its civilizing mission was holy – including planning to starve millions to death without remorse.

Although there is no specific mention of the Backe Plan, the infamous hunger plan, it is evident that it was understood at the basic soldier level. As the Wehrmacht spearheads go further and further away from their logistical-supply points, the more soldiers resorted to living off the land. In the Leningrad and regions north of Moscow, where the living was harder, this was a veritable death sentence to the Russian peasant. Time and time again we read of the German soldier's rationalizations that come down to one of two points: it's either we eat or they eat. And, secondly, the Russian peasant is used to suffering and getting by, so it's ok if we take food from them.

War in the era of the nation state is exemplified by the killing of the enemy's forces. By killing enough of them, it breaks their will to resist. There is no magic formula in how many of the enemy we need to kill to achieve our strategic goal of the cessation of hostilities. Killing enemy combatants is clearly recognized in international law and various religious works, but from the outset, Operation Barbarossa clearly broke new grounds, politicizing the war in ways unfathomable to modern Western military tradition. In the book's collected letters, we see the ordinary German soldier casually rationalizing the criticality of how the rules don't apply here, from the Commissar Order to other draconian measures.

The early iron fist on Soviet Partisans and the Communist apparatchik, as exemplified by the Commissar Order, is spoken to time after time, as soldiers routinely mention shooting them. Yet even this had some roots in the history of the Prussian Army, going back to the Franco-Prussian War and World War I, and the German shooting of hostages and alleged franc-tieurs. The new politicization of the war was but a logical extension of disenfranchising the ethnic German Jews, but now with monstrous overtones.

The barbarity here is best exemplified by the mobile death squads, the *ein-satzgruppen* that followed behind each of the three Army groups. The Wehrmacht not only helped in these actions but by its own legal proclamations removed any negative military judicial actions against German soldiers for any "excesses" against Russian civilians. This was a war of genocide, of simple brute extermination, for any useless Russian mouth that was taking food from the superior German folk. Think of the hundreds of thousands of Soviet prisoners of war who were surrounded with barbed wire and left to starve or perish from the elements. Tamerlane would have felt right at home with the way the Wehrmacht operated.

Stahel's and Luther's contribution is a nice collection of materials on how German forces in the east operated. The book starts with some pre-invasion letters and goes to the initial elation and heady days of smashing the

Red Army to the disquiet that starts to become evident as the average German soldier is befuddled that the Russian continues to resist. Then comes the ominous overtones that increasingly creep in with the muds of September. Care was taken that entries follow each other in chronological fashion.

But what makes this work stand out is that its focus is not solely on the combat soldier at the point of the spear but has entries from medical staff – such as Dr. Heinrich Haape (his own recollections are set forth in *Moscow Tram Stop*, reviewed next) – construction staff, Luftwaffe folks and regional-defense-battalion personnel as just a small sampling. It is easy to overstate a small sample of micro-observations, but when it is a veritable flood, as here, it enhances not only our overall understanding, but we can begin to discern patterns in weather, morale and the maintenance status of weaponry.

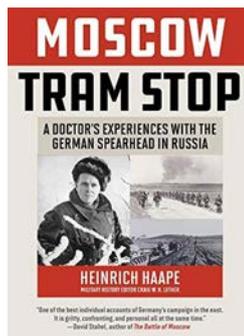
What is also just as interesting are the beginnings of a sense that maybe someone – surely not the Führer – doesn't quite have a handle on the immensity of the campaign. Just as telling is how inculcated the Wehrmacht is that Barbarossa was a holy crusade and simply had to be done now rather than later, as all leaders and soldiers feared the specter of Soviet communism.

We can only hope that Luther and Stahel will continue this fine project, with more volumes that go through the end of the war on the East Front.

DR. (LTC) ROBERT G. SMITH

**Moscow Tram Stop: A Doctor's Experiences with the German Spearhead in Russia** by Dr. Heinrich Haape, edited by Craig W.H. Luther; Lanham, MD:

Stackpole Books; 2020; 468 pages with appendices, historical commentary, maps, photographs, select bibliography and index; \$35.87 hardcover,



\$28.99 Kindle.

In the modern era, one is flooded with volume after volume of personal recollections by military figures, many of which offer little of substantive value or meaningful insight. These recollections are well-intended but seldom rise above “this was my war.” Then there are the real outliers like *Moscow Tram Stop: A Doctor's Experiences with the German Spearhead in Russia*, the wartime recollection of Heinrich Haape, a “fighting” doctor on the East Front.

Whether you have an affinity for the climatic struggle that was the Eastern Front in World War II, or simply want a different military history experience, this book is it and then some. Be prepared to be surprised by the recollections and actions of Dr. Heinrich Haape, who is not quite like the standard American military medical officer. Craig W.H. Luther has done a tremendous service by working to revitalize this previously published book for the modern reader.

I will note my own prejudice up front – that if the name Craig W.H. Luther is attached to a work, I will automatically give it due respect. But we had already read other snippets and recollections by Haape in Luther's underappreciated book *Barbarossa Unleashed: The German Blitzkrieg through Central Russia to the Gates of Moscow* and his current work with David Stahel *Soldiers of Barbarossa: Combat, Genocide and Everyday Experiences on the Eastern Front, June-December 1941*. Those only made me more interested, wondering if Luther had cherry-picked the best of the rest of Haape's commentary, skimming off the cream from Haape's book.

In the armor community, when we think of the battalion surgeon in the battalion or brigade field trains, that is what they are, and seldom more. We don't expect our medical folks to be combat warriors, and seldom do any of ours seem to have much affinity in tactical proficiency. What you will find instead is that the common experience of most medical doctors doesn't translate into what medical personnel faced in the Germans' war in the East – and particularly the fluid

early months of Operation Barbarossa. Indeed, it is almost an understatement to say that Haape's book is both eye-opening and almost shocking in the clinical manner in which incidents are calmly related. And then there are those like on Page 41: “We treat it as a good omen when one of the men finds a Bronze Eagle of Napoleon's army, half-hidden by the road near the water's edge”

One might find themselves surprised that Haape was aware of the infamous Commissar Order. Yet Haape treated Russian prisoners, even after having been told of the death of a friend who, while trying to treat German wounded, stood up wearing his Red Cross armband, waving his Red Cross Flag, but the Russians poured a torrent of fire into his position. That in part leads to a map as unique as any I have ever seen in a military history book: a map of the gravesite of his comrades while attached to 3<sup>rd</sup> Battalion, 18<sup>th</sup> Infantry Regiment, part of 6<sup>th</sup> Infantry Division.

Haape, instead of staying to the rear, often went forward with the assaults. He received in Summer 1941 the Iron Cross 2<sup>nd</sup> Class for tending the wounded courageously well forward under fire. Yet death becomes an event more and more casually discussed, such as when his new medical orderly's shell hole is hit by a Soviet artillery barrage; Haape found that the soldier had disappeared, disintegrated by a direct shell hit.

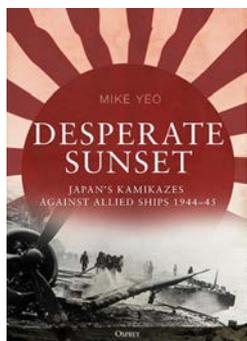
*Moscow Tram Stop* will offer you not only the unique perspective of a doctor serving at the front line, but a politically and more militarily astute doctor. What makes this book stand out is the unusual depictions of daily life and his interactions with local Russians, including one beautiful female fatale! As well, the efforts to survive off the land and to keep wounded soldiers alive is a tale that seems near unbelievable. Nor does Haape shy from depictions of the coarse brutality that characterized war on the Eastern Front.

Reading this account of a medical doctor decorated for heroism in combat will change your perspective on how war was conducted on the Eastern Front and the Wehrmacht's overall organization. One almost gets the

feeling that a dogma like our own U.S. Marine Corps' concept of "every Marine is first and foremost a rifleman" was either drilled into even the German medical personnel or that their military culture made them responsive to those social mores. ***Moscow Tram Stop*** is a different type of compelling military memoir that is worth your intellectual investment.

DR. (LTC) ROBERT G. SMITH

***Desperate Sunset: Japan's Kamikazes against Allied Ships, 1944-45*** by Mike Yeo; Oxford, United Kingdom: Osprey Publishing; 2019; 352 pages with illustrations, maps and appendices; \$45 hardcover, \$17.01 Kindle.



The desperate Imperial Japanese effort to stave off an impending and catastrophic defeat for itself had reached a military *cul de sac*. The air arms of both the Japanese army and navy were no longer competitive in terms of platforms, doctrines and – worse – trained pilots.

It is in this context that we need to consider the kamikazes, or "the divine wind," as an extension of Japanese culture and history. In our era of individual suicide bombers and vehicle-borne individual explosive devices, Mike Yeo's ***Desperate Sunset: Japan's Kamikazes Against Allied Ships, 1944-45*** from Osprey Books is both a timely and interesting read. It is also interesting to see this large volume from Osprey Books, as Osprey books conjure up a series of small but succinct overviews, lavishly illustrated, on a myriad of subjects.

***Desperate Sunset*** is the most detailed work read to date by this reviewer on the Japanese kamikaze effort, including U.S. Navy official after-action reports in our personal collection. It is a very detailed read that can feel overwhelming unless you are like many of the aficionados of operational and logistical matters who want to know

what equipment was used and its place of origination.

Yeo gives the reader a great mental placeholder by detailing the types of planes the Japanese used in these desperate battles. You might find yourself surprised at how many types of planes were used, including "Willow" bi-plane trainers.

Truly Yeo is on sure footing here. Reading the section alone on the Kawasaki Ki-61 Tony will whet your appetite. Yeo notes that this plane was developed in testing against a P-40, a ME-109E and a Soviet LsGG-3. Yeo neatly encapsulates the critical element of the wide range of planes employed and their impact on the kamikaze campaign.

You will also grasp in a back-handed manner the importance of Formosa for the launching of these attacks and why the debates ensued in the American high command on what exactly to do about Formosa.

What any reader will find engrossing is the incredible wealth of detail that ***Desperate Sunset*** encompasses. Many times Yeo is able to tell us the exact pilot who struck a given ship. You will also see discrepancies between the actual Japanese logged flights on a given day and what the Allied fleets thought were actually in the air.

If you don't find that wealth and level of detail simply engrossing, one would wonder why you are reading such a book. For this reason alone, as well as the damage reports, the book comes highly recommended. Moreover, this is beyond the normal realm of the nice little books Osprey produces to give you some sense of a specific area of military history.

There are several things the author or the editors should have addressed. First and foremost is the unusual use of the caption text in the body of the book itself. It is a very odd practice to come across and feels like it was a device to pad the book in terms of length. Rather than use these again verbatim, Yeo could have instead shortened the picture caption or rewritten that information for inclusion in the book's body. As it is, this convention simply feels sophomoric.

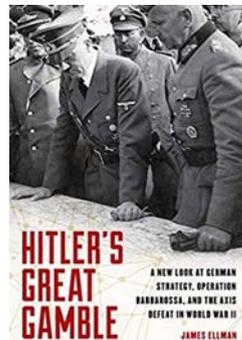
The chapter on Okinawa is brutally

long, to the point you just want it done. The reason it feels that way is it's not broken up as it could have been into the major kamikaze efforts or offensives. After each Japanese offensive effort, Yeo could have provided a recapitulation of that phase. With just a slightly more deft touch, Yeo could have made this chapter both easier to read and provided more context.

With those small criticisms, ***Desperate Sunset*** is a rare, detailed book that is richly illustrated, structured well overall and well written. It is almost numbing to read attack after attack after attack. Yeo does a superb four-page summary and analysis of the cost of the campaign to the Japanese and the Allied ***fleets***. ***Desperate Sunset*** deserves a place on one's bookshelf.

DR. (LTC) ROBERT G. SMITH

***Hitler's Great Gamble: A New Look at German Strategy, Operation Barbarossa and the Axis Defeat in World War II*** by James Ellman; Guilford, CT: Stackpole Books; 2019; 272 pages; \$33.20 hardcover, \$24.99 Kindle.



Operation Barbarossa, like Gettysburg and Napoleon, is a topic that seems to spawn new books. One might think those topics are over-

grazed, but with personal reminiscences and sometimes new revelation in terms of discovered droves of documents or the on-and-off-again release of Soviet archival material, authors can go down new avenues. ***Hitler's Great Gamble*** by James Ellman tackles this immense topic in a manner that might raise some eyebrows. The book is written in a dynamic style with an overall emotive quality to Ellman's writing.

One of the author's theses is that Operation Barbarossa failed in part due to Hitler's failure to pursue with more foresight the diplomatic element of the diplomacy-information-military-

economics concept. This contention, though interesting, feels much like a strawman argument. It would be perhaps easier to teach a pig to whistle than to see Hitler with his intellectual framework of National Socialism pursuing a more balanced diplomatic pathway. In part this was due to his being of a very mid-European-centric outlook, having traveled little, evident by his lack of understanding other cultures except as caricatures that aligned with his National Socialistic worldview.

So Ellman failed to really sell me on this critical tenet of his book, for who was going to convince Hitler, the font of all major decisions, to go down a radically different pathway in terms of diplomacy? That one example is the reef and shoals that *Hitler's Great Gamble* can never really escape. Frankly I don't fully understand Craig Luther's comments – a historian I greatly like and whose works I have reviewed for *ARMOR* – when he wrote that *Hitler's Great Gamble* it is a “bold, fresh interpretation.”

But in one sense the thesis founders early that despite any great diplomatic initiatives, warfare had moved beyond blood and iron to one of oil and rubber, as Niall Ferguson notes in *The War of the World*. No great diplomatic initiatives were going to garner these two critical commodities for warfare dictated by the internal combustion engine from the British Empire – much less from Italy and Imperial Japan, who were resource-poor and had none to spare. As it was, Hungary and Romania were, in essence, economic satraps in terms of oil.

But then there is a tendency to simple sloppiness by the author or his proofers. Denmark and Norway are called the “Low Countries” (look it up on Page 31 of the book). He speaks in passing to the diversion in the Balkans and its impact on the invasion that has been disproven, for the reality was that hydrological conditions were not ripe due to high water that spring in Eastern Europe. Ellman talks about Germany's productive agriculture when in reality it had been in crisis for a number of years. As well, he gives Neville Chamberlain more than a bit of a pass in the appeasement

sweepstakes; Tim Bouverie in his recent work *Appeasement* simply dismantes this type of apologetic view.

Much of the material noted in the book's notes is perhaps stale or simply outdated, with heavy reliance on *Kruschev Remembers* and some on Carrell's *Hitler Moves East* (a fun but suspect read). In fact, to call “Paul Carell” an historian would make Thucydides shudder, as “Carrell” served as the chief press spokesman for Joachim von Ribbentrop's Foreign Ministry and wrote *ex post facto* a romanticized and sanitized version of the Wehrmacht's culpability on the Eastern Front. What is inexcusable is that Ellman inexplicably misses the best source material, *Germany and the Second World War*. This comprehensive 10-volume history of World War II is written from the German perspective under the auspices of the Militargeschichtliches Forschungsamt (Research Institute for Military History).

Bibliography? There is none, which makes us wonder how a respected historian like Luther ended up on the dust jacket. Amazon laughably claims the book is deeply researched.

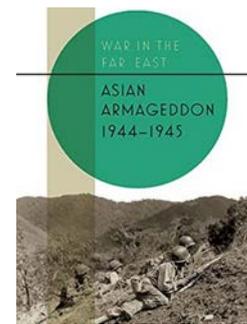
One thing you need to know is that this is not really a standalone work, as the author presupposes his intended audience is already knowledgeable on the subject. The value of this work is its different and perhaps intriguing overview of Operation Barbarossa from a non-military historian who has no substantive military background. His counterfactuals are both fun and provocative at times and will send you into your own personal library to see if the author is on target or to mull over his different interpretations of Operation Barbarossa. I found the book to be more aligned with those who accused Eisenhower of starving to death millions of Wehrmacht prisoners of war; it was in search of an angle that would require a more discerning eye or perhaps substantive military analysis.

This reader was left generally unconvinced by much of the author's work and overall thesis. As noted early in this review, the book does presuppose a certain elementary knowledge on the subject of Barbarossa. *Hitler's*

*Great Gamble* is a different approach to the subject that may not align with how much of the Eastern Front community views this campaign, and for that reason deserves your consideration, but I will note: your intellectual mileage may vary.

DR. (LTC) ROBERT G. SMITH

*Asian Armageddon 1944-1945* (War in the Far East trilogy) by Peter Harmsen; Havertown, PA: Casemate Books; 2021; 248 pages with maps, photographs and notes; \$24.36 hardcover, \$15.09 Kindle.



*Asian Armageddon 1944-1945* is the final volume of Peter Harmsen's trilogy War in the Far East. Harmsen must moonlight as an auto mechanic,

for he is hitting on all cylinders here, a rarity for any type of multi-volume work, even more so in history. He speaks adroitly to the terrible conundrum that Chiang Kai-shek was in as 1944 approached. The cruelty of this dilemma became even more apparent with the Japanese blitzkrieg, the Icho-Go Offensive. More than 800 tanks were used, and although Japanese armor was technologically vastly inferior to Allied armor, the Chinese had no armor and essentially no anti-tank weaponry or doctrine.

Moreover, Harmsen shows he has a feel for military matters, noting how the Japanese learned how to counter the previous successful defenses of Hunan Province. To appease the Allies, Chiang's best divisions were in Burma to become seasoned. Harmsen notes the assumption was made that the Japanese were so distracted by the Allied Pacific offensives that China was a backwater – for the Allies, it *was* now a backwater. However, this was an epic failure to see the war from the Japanese side and not asking the question, “What are the strategic and operational options available for the other side?”

What we see by inference is the

failure of the Allies to understand Chiang's preoccupation for the war he knew that was coming after this war. In particular, the American failure to recognize the cost of the war to China as a whole casts more than an unfair pall over the Nationalist effort to survive. Although Harmsen never comes out and condemns Chiang for the allowance of corruption, one senses a sympathy born out of the tremendous pressures on Chiang, and again, his knowledge that he had to bolster his military and political forces for the war of reckoning with the Communists.

We were surprised he didn't do more with the fighting in the San Bernadino Strait, as this was when the Japanese surface fleet burst through, led by the battleship *Yamato*, into the middle of the U.S. surface fleet of baby flat tops and unprotected troop transports. Here was the moment envisioned by all big-gun enthusiasts, as Halsey had taken the Japanese bait and took all the fast American battleships to sink the empty Japanese carriers. Such drama here, yet Harmsen doesn't work his normal magic, which is a shame, as it was the highest moment of naval drama after the Battle of Midway.

But then, when Harmsen didn't talk about how the Japanese admiral had to be fished out of the water in dramatic terms when his flagship *Atago* was sunk by submarines on the initial breakthrough efforts – which probably impacted all his subsequent fleet battle actions – one suspects Harmsen's rendering of the fighting in the San Bernadino Strait might be less than one might have hoped for.

His section on the Philippines seems thin, but in reality, the liberation of the Philippine Islands was not marked by epic battles except for the Battle for Manila. Harmsen covers well enough for the scope of this work the destruction of Manila, as it was the Stalingrad of the Pacific for the Americans. The disastrous Imphal Offensive and the British reconquering of Burma is aptly done in a few pages, and the Burma portion might be new fare for American readership.

As well, Harmsen writes about the Soviet offensive into Manchuria that overwhelmed the Kwantung Army.

More compelling, Harmsen writes movingly of the plight of the Japanese colonists there, abandoned and often left with only the option of the honorable death of suicide. Time and time again in *Asian Armageddon*, one is forced to confront the war from the other side of the hill, as we read account after account of Japanese soldiers who are starving to death – or as we euphemistically called it, “left to wither on the vine.”

The two areas the book excels is in the telling of the death throes of colonialism in Asia and the rise of China. His summation of the rise of China is quite masterful. But his telling of how Dutch East Asia and French Indo-China were already showing signs of restiveness is neatly packaged without the need to read the excellent two works (recommended) on this topic, *Embracing Defeat* and *In the Ruins of Empire*. In both cases, the death knell of European colonialism and perhaps the Allied mishandling of China continue to impact the current geopolitical realm 70-plus years after the surrender ceremony in Tokyo Bay. Harmsen seems to deftly dance around the subject though of the guilt and responsibility of Hirohito.

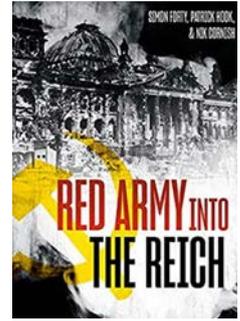
With little hyperbole, we can tell you this entire series is worth owning for its concise and objective view of the Pacific War from 1931-1945. With the final volume, Harmsen ably brings the trilogy to a close. Well researched for its size and scope, *Asian Armageddon* shows what can be done with disciplined writing and a fresh look at a subject. Our only regret is that each volume was not double in size. *Asian Armageddon* punches intellectually far above its size and deserves your serious consideration.

DR. (LTC) ROBERT G. SMITH

*Red Army into the Reich: The 1945 Russian Offensive* by Simon Forty, Patrick Hook and Nik Cornish; Havertown PA: Casemate Publishers; 2020; 256 pages with index, maps, photographs and illustrations; \$36.88 hardcover, \$22.95 Kindle.

*Red Army into the Reich* is an easy-to-overlook book with its glossy artwork on the cover of the burned, shelled

and shattered Reichstag. This substantive work by Simon Forty, Patrick Hook and Nik Cornish flies under the radar, masquerading as a coffee-table book



due to its format and apparent glossiness. No, *Red Army into the Reich* cannot be said to be anything but perhaps the best work of its kind for what it intends to do on the Soviet war-ending drive into the Third Reich. We thought so highly of this volume that we sent it as a Christmas gift to four fellow military historians, former Armor officers and Eastern Front gaming aficionados.

Casemate's well-illustrated and -researched book *Kamikaze* established a good precedence and paid off well here with *Red Army into the Reich*. Many books of this type suffer from a weak or absent thesis, a lack of overall organization or poor editing – or worse, are poorly written or sloppily translated. The death knell is if the historical facts are either wrong or there is a fanciful approach to history. *Red Army into the Reich* suffers from none of those flaws and flows seamlessly in terms of overall organization.

The book in terms of storytelling breaks up the East Front into discrete geographic areas, going from early 1945 in most cases to the end of the war in Europe, with the notable exception of the Baltic States and Finland. The long introduction will acquaint or even bring readers somewhat familiar with the material up to speed on the East Front. Chapters cover Finland and the Baltics, Poland, Hungary, the Balkans, Czechoslovakia, Austria, Germany, aftermath and “remembrance.”

We as a nation fail to do homage in any manner like the Soviet Union and Eastern Europe have done for their warriors. As I took a Viking River Cruise through Ukraine in 2018, one saw in every town square some type of memorial to the Great Patriotic War, and even better for an Armor enthusiast, many tanks mounted in an impressive manner. There is also an interesting discussion in the book on

how these Soviet monuments of a heroic and romanticized style resonate in the freed former Warsaw Pact nations of Eastern Europe.

There are also interesting aside mini-articles interspersed throughout the book such as one entitled “Fellow Travelers”: leaders who threw in with the Third Reich such as GEN Andrey Vlasov, a rising Red Army star who headed the Russian Army of Liberation, or the Grand Mufti of Jerusalem, leading to the formation of the first non-Aryan Waffen SS division. There are many descriptive pages of uniforms and weaponry, including a fascinating piece on Hungarian armor efforts.

There is even a minor piece on the epidemic of rapes committed by the Red Army, noted in the book as roughly 2 million. What is not fully addressed here is the basis of how this retribution came about. Frank McDonough in *The Hitler Years: Disaster 1940-1945* addressed how the Decree on the Exercise of Military Jurisdiction, a legalistic fiction, opened the door for widespread rape, gang rape, sexual enslavement and sexual violence by German soldiers (Page 165), helping to lead to the 1945 horrors. But the fact remains that it is even addressed here is outstanding.

For a book that is as lavishly illustrated as *Red Army into the Reich*, replete with maps and many heretofore-unseen or seldom-used photographs, it serves up substantive fare, though with some minor lapses in writing. The military-simulations publisher SPI, who revolutionized the military-simulations-field industry in the 1970s, also produced one of the great lesser-known comprehensive overviews of the East Front called *War in the East*; *Red Army into the Reich* moves in a dynamic fashion past that venerated warhorse in its total approach.

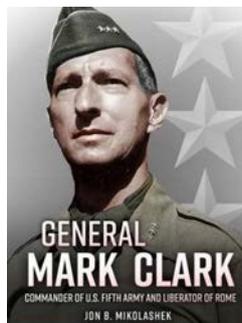
But *Red Army into the Reich* is weak on current scholarship by a bit of a margin. Earl Ziemke’s two-volume series on the war in Russia for the U.S. Army Center of Military History (CMH), although still of value, is dated. There is an overreliance on the postwar pamphlets CMH has reproduced, as well on the German experience on the

East Front and on Osprey works. It is not as if there are not series of good recent works that these authors could not have readily consulted for *Red Army into the Reich* – such as popular books like Ian Kershaw’s *The End*, Pritt Buttar’s *Battleground Prussia* or Igor Nebolsin’s *Tank Battles in East Prussia and Poland 1944-1945*. Even more so, if they wanted to add overall gravitas, they could have consulted the series *Germany and the Second World War* done by the Research Institute for Military History.

If you have any interest in understanding the final cataclysm that overtook the Third Reich and delineated the hows and whys of the Cold War – and Eastern Europe after the collapse of the Soviet Union – *Red Army into the Reich* will give you a glimpse into a generally underreported past. Do not allow this lavishly illustrated volume and its infrequent grammatical lapses to not find a cherished place on your bookshelves. There is little room for fault with this book that one suspects they will find areas they overlooked in their first reading, for it is a book that will undoubtedly be consulted from your shelves. The bottom line is *Red Army into the Reich* is a small slice of heaven for the East Front fan.

DR. (LTC) ROBERT G. SMITH

*General Mark Clark: Commander of U.S. Fifth Army and Liberator of Rome* by Jon B. Mikolashek; Havertown, PA: Casemate Publishers; 2021; 216 pages including maps, photographs and appendix; \$24.95.



After the 1943 Sicilian conquest, the Allies were faced with a strategic dilemma. Should they invade the Italian mainland or build

up forces in preparation for an invasion of Europe aimed at the heart of Germany? Prime Minister Winston Churchill favored expanding the Mediterranean Campaign to curtail expansion of Soviet influence in the Balkans.

Churchill’s arguments won him a temporary victory; the Allies agreed to invade Italy while at the same time gathering forces together for the invasion of France.

The Italian invasion force consisted of the British 8th Army under Field Marshal Bernard L. Montgomery and the newly formed American Fifth Army under the command of LTG Mark W. Clark. Clark’s professional life, along with a detailed review of the trials and tribulations of Fifth Army, are the subject of Dr. Jon B. Mikolashek’s latest work for Casemate publication’s “Leadership in Action” series.

Mikolashek begins by examining Clark’s early years. Born into an Army family, Clark entered the U.S. Military Academy in 1913. His class included such notables as Matthew B. Ridgway and Joseph L. Collins. While at West Point, his barracks also housed Dwight D. Eisenhower, a member of the Class of 1915. They established a friendship which they would build upon in the future.

By April 1917, Clark was an infantry officer assigned to 11<sup>th</sup> Infantry Regiment. The regiment landed in France and immediately took up positions in the Vosges Mountains area. Now a captain, Clark assumed command of 3<sup>rd</sup> Battalion when the commander was disabled. Wounded two days later, Clark recovered and assumed staff duties until the end of the war.

Clark’s postwar years are described by Mikolashek as times of “slow promotion, poor pay and awful assignments.” The author provides several examples of Clark’s assignments that exemplify these characteristics. Fortunately, his outstanding staff work drew the attention of many senior officers. By 1939, Clark was assigned to 3<sup>rd</sup> Infantry Division as the intelligence and operations officer. While there, he rekindled his friendship with Eisenhower, also assigned to the division.

Mikolashek’s brief summary of Clark’s accomplishments while in the division established the basis for his rapid promotion. Clark, along with several other officers, skipped promotion to colonel and pinned on the star of a brigadier general shortly before the United States entered World War II. His

rapid promotion caused some lasting resentment and bitterness from his peers.

Once the United States entered the war, Clark assumed command of the II Corps in England. Initially the corps was tasked with training, not deploying, troops for combat. Not wishing to miss an opportunity to command soldiers in combat, Clark became Eisenhower's deputy, who was then commander of forces in England. Together, these two led the planning effort for the invasion of North Africa in 1942. As Eisenhower's deputy, Clark conducted several vital missions that are concisely detailed by the author.

Promoted to lieutenant general, Clark assumed command of Fifth U.S. Army and prepared to invade Italy. This land campaign began with landing of his troops at Salerno. His command included the American VI Corps and the British X Corps. The difficulties of this landing and the challenges presented to Clark are succinctly described by Mikolashek, as is the agonizingly slow and costly drive up the Italian peninsula.

Clark's forces entered Rome June 4, 1944. Two days later, the Allies landed in Normandy. The Italian campaign thereafter became a backwater as troops and supplies were diverted to the forces then invading France. How Clark maneuvers and supplies his forces as they drive north of Rome form the concluding chapters of the book.

While this is not a work on armored warfare, the narrative will expose maneuver commanders to several thought-provoking and controversial actions by Clark. Maneuver commanders should evaluate whether they would support or alter his conduct of the campaign. For example, the disastrous crossing of the Rapido River by 36<sup>th</sup> Infantry Division should allow present-day maneuver commanders an opportunity to ask themselves, "What would I do?"

In Clark's case, his actions resulted in a post-war congressional investigation. Was the bombing of the abbey at Monte Cassino justified? Did he handle the January 1944 landing at Anzio correctly? Should that operation have even been attempted? Probably the

most controversial tactical decision Clark made involved the breakout from the Anzio area and the drive to liberate Rome. Mikolashek has some harsh criticism of Clark's actions. After reading the section, would maneuver commanders agree with the author or dispute the conclusions?

This is an interesting and well-researched examination of Mark W. Clark. This work should be studied by maneuver commanders to understand the complexity of dealing with allies, the struggle for resources during a conflict and the political overwatch of a campaign.

**COL (RETIRED) D.J. JUDGE**

***Day of the Panzer: A Story of American Sacrifice in Southern France*** by Jeff Danby; Havertown, PA: Casemate Publishers; 2021; 365 pages including maps, photographs, footnotes and bibliography; \$24.95.

During World War II the American Army sought to overcome German tactics by employing effective company-level teams of tanks and infantry. Training an effective tank-infantry team is a worthwhile but time-consuming activity. Jeff Danby's latest work tells the tale of the combined-arms team formed by attaching Company B, 756<sup>th</sup> Tank Battalion, to Company L, 3<sup>rd</sup> Battalion, 15<sup>th</sup> Infantry Regiment, 3<sup>rd</sup> Infantry Division.

Danby has a personal interest in this particular group. His grandfather, 1LT Edgar R. Danby, was a tank-platoon leader with Company B. In an attempt to better understand his grandfather's role as a platoon leader, Danby embarked on a six-year research effort. The result is a work that details close-combat operations using tanks and infantry.

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The author begins by summarizing 3<sup>rd</sup> Infantry Division's activities prior to landing in southern France, with

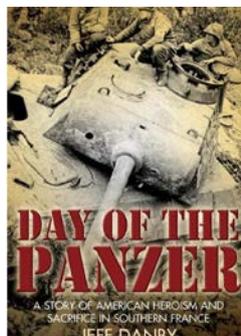
emphasis on the combat lessons Company L learned during its stay at the Anzio beachhead from January to May 1944. Breaking out of Anzio, Company L moved quickly up the Italian coast and participated in the seizure of Rome. They rested and refitted in the area surrounding Rome until August, when they were selected to land in southern France as part of the Operation Dragoon invasion force.

Danby explains the actions of the L Company team once ashore as they pursue elements of the German 19<sup>th</sup> Army, which was defending the French ports of Marseille and Toulon. His narrative describes the actions that take place, with details on the individual American Soldiers engaging the enemy, their duties and the weapon systems they used. Within days of the landing, Company L and the attached tanks find themselves attacking up the Rhone Valley.

It is at this time that Danby's grandfather reports as a tank-platoon leader with Company B. Supply difficulties limited the amount of fuel available. Given these restrictions, pursuit operations against the Germans slowed down.

Attempting to interdict the retreating Germans, a depleted Company L with two Sherman tanks and a few other vehicles engage the enemy in the town of Allan. As LT Danby's tank enters the town, a German rear-guard force of tanks and anti-tank guns takes the Americans under fire. They hit LT Danby's tank, opening a "four-inch hole ... on the left side of the gun mantle, perforated cleanly as if by a giant invisible paper punch." The subsequent explosion kills the gunner, loader and tank commander – LT Danby's first day in combat ends with his tragic death. Subsequently, a German counterattack throws the Americans off balance and several Americans are captured. The action is described in detail, along with a narrative on what happens to the men captured.

This is a fast-paced, interesting narrative on employment of a tank-infantry team. Danby is to be commended for his fine efforts. His research is thorough and well-documented in the footnote section. The author's final



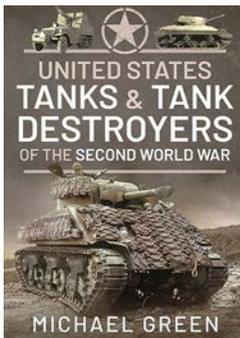
chapter lists the men consulted in Danby's painstaking research. Their post-war activities, along with a list of the decorations they earned, are detailed, along with a glossary and charts on the organization of the infantry-tank company. Maps and applicable photographs supplement the text.

Also noteworthy are the participants' many anecdotal tales of their time in combat. These range from the division commander's displeasure at seeing his Soldiers fail to maintain acceptable standards of dress and deportment; the employment of the duplex-drive Sherman tank; the shortcomings of the Sherman tank; and the marksmanship qualities of both German and American troops.

The book's title is somewhat misleading. This is not a work that addresses large tank engagements, nor is it a biography of LT Danby. Rather, this work concentrates on the performance of the tank-infantry team in combat, and, as such, it will appeal to a wide audience seeking to improve their tactical skills by reading lessons-learned by the Soldiers of World War II.

**COL (RETIRED) D.J. JUDGE**

***United States Tanks and Tank Destroyers of the Second World War*** by Michael Green; South Yorkshire, United Kingdom: Pen & Sword Books; 2021; 255 pages, including photographs and bibliography; \$34.95.



World War I opponents designed, manufactured and employed tanks to gain battlefield mobility. At the conclusion of hostilities, both the victors and the vanquished sought tanks that were better designed and armed than their forbearers. In his most recent work, Michael Green, a prolific writer of military-related subjects, addresses the United States' development and employment of light, medium and heavy tanks, along with tank destroyers, during World War II.

As the author states in his introduction, "This work is only a very broad overview of the history of American tanks and tank destroyers." He begins by addressing the pre-World War II light tanks available to the U.S. Army. Funding limitation heavily impacted the design and procurement of tanks. Green begins by tracing the place of the light tank in the newly created armored force. Both the cavalry and infantry branches possessed light M2 tanks equipped with .50 and .30 caliber machineguns. As war neared, armament for the M2 series was upgraded to include the standard machine configurations and a 37mm main gun.

The Marine Corps employed a limited number of these M2A4s at Guadalcanal. The Army used these vehicles only for training. Since the M2 was unsuitable for combat operations, it was replaced by the M3.

There were some 13,000 examples of the M3 produced between 1941 and 1943. The original M3 version saw early combat in the Philippines and North Africa. Several types followed. Weighing between 14 and 16 tons, each model was equipped with a 37mm main gun and various .30 caliber machinegun configurations. Several Allied nations were also provided with this tank. As explained by the author, battlefield reports found the tank lacked sufficient armored protection and firepower.

Enhanced tank-manufacturing techniques surfaced in response to field requirements for better equipment. To improve understanding of these tank-production procedures, Green explains the differences between face-hardened armor (FHA), cast homogeneous armor (CHA) and rolled homogeneous armor (RHA). Manufacturing advances resulted in the fielding of the M5 series of light tanks. While this series had improved performance, better handling characteristics and better crew compartments, it was still armed with the inadequate 37mm main gun.

Given these shortfalls, the Ordnance Department fielded the M24 to the European Theater of Operations in December 1944. The M24 was equipped with a 75mm main gun, torsion-bar

suspension and a .50 caliber machinegun. The Army employed the M24 in cavalry units well into the 1960s.

Green next addresses the M3 and M4 medium tanks. The author relies on battlefield reports on M3 and M4 performance, anecdotal commentaries by crew members and production statistics to guide the discussion. The M3 was an interim design. It boasted a turret-mounted 37mm gun and a hull-mounted 75mm gun. British use of the tank in North Africa during the latter part of 1942 received positive comments. However, the tank's high silhouette and awkward requirement for positioning the 75mm gun limited its utility.

Using summations of the Ordnance Technical Committee finding, Green traces the creation of the follow-on tank to the M3: the M4 Sherman tank. He notes that the "first-generation Sherman tanks ... were envisioned as tank killers." They were to exploit breakthrough and go deep into the enemy rear. To perform this role, the tanks had to be mobile, reliable, durable and adequately armed.

Improved manufacturing methods permitted the casting of a turret capable of housing a 75mm main gun. When mated to a hull and engine, the M4 was a marked improvement over the M3. Weighing in at 33 tons, the M4 was easy to maintain, repair and modify. Six major models and a number of subsets of a given model were produced during World War II. The Sherman's maneuverability and reliability were impressive.

The tank was not without deficiencies. Green discusses several comments from field commanders on the inadequacy of the short-barreled 75mm main gun, the fielding of the 76mm gun system, added armor protection techniques, ammunition storage and use, along with design features for each version of the M4. Photos and descriptions explain each of the many modifications made to the basic Sherman throughout the war.

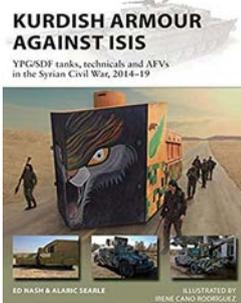
The role and use of wheeled and self-propelled tank destroyers in every theater of World War II, the doctrinal shortfall not foreseen by the Army when they first appeared on the

battlefield, and the steps taken to improve performance are addressed by Green. He concludes his work by focusing on the development and limited employment of the M26 Pershing heavy tank.

Green presents a well-researched, highly readable review of tank development during World War II. This work will appeal to maneuver commanders seeking to enhance their understanding of tank development, employment and the vital role of field feedback to improve design and modifications of a given tank.

**COL (RETIRED) D.J. JUDGE**

***Kurdish Armour Against ISIS: YPG/SDF Tanks, Technicals and AFVs in the Syrian Civil War, 2014-2019*** by Ed Nash and Alaric Searle; New York: Osprey Publishing (New Vanguard series); 2021; 48 pages; \$19 (paperback).



As I write this review, world attention is largely focused upon the large buildup of Russian forces threatening to seize the Ukraine or

upon China's increasingly hostile rhetoric against Taiwan. The ongoing Syrian Civil War and the continued danger posed by radical Islam in the form of the Islamic State in Iraq and Syria (ISIS) rarely make front-page news.

Military professionals may, however, wish to devote an evening's study to ***Kurdish Armour Against ISIS: YPG/SDF Tanks, Technicals and AFVs in the Syrian Civil War, 2014-2019*** to brush up on the role that improvised armor might play in the future.

The book – really more of a monograph given its length of just 48 pages – covers a variety of Kurdish armored vehicles employed in the Syrian Civil War. Nash conducted primary research in a most unique manner given his service as a volunteer fighter with the Kurdish Yekineyen Parastina Gel (YPG) in 2015-2016. Readers looking for more on his personal experiences in Syria may wish to pick up a copy of his previous book titled ***Desert Sniper***.

The authors thoughtfully include a brief history on the Syrian Civil War, including a description of the major opposing factions as a scene-setter for the central subject matter. The core of the book, as the title suggests, is devoted to YPG and the multiethnic Syrian Democratic Forces' (SDF) armor development, employment and doctrine, with some discussion of the other regional forces. Unit structure and battlefield tactics receive some examination, as does the combat performance of the armored systems. The final pages address the YPG and SDF major operations against ISIS until the latter's defeat in 2019.

The book contains a surprisingly large volume of color photographs, many provided by Nash himself from his time in Syria, and beautifully painted artist illustrations. The writing is

straightforward and factual, with little attempt to develop a storyline beyond that required to explain the various armored vehicles extant in Syria.

Readers will find *Kurdish Armour* an excellent primer for how paramilitaries may employ both homemade as well as conventionally developed armored vehicles as a separate element or in coordination with conventional military forces. While there is no lack of books on the Syrian Civil War itself, Nash's and Searle's work fills an important niche assessing the types and operational performance of armor that will inform their role in other conflicts.

Restated, the U.S. military will see this threat again and should account for it in doctrine or equipment development. America's material wealth and ability to produce modern weapons platforms may blind us to the ingenuity of enemies able to rapidly develop similar, albeit less combat capable, systems from captured, repurposed or repaired systems. Improvised armor will pose a particular threat to U.S. allies in the developing world or those reliant upon motorized- or infantry-based formations due to budget restrictions.

**LTC CHRISTOPHER J. HEATHERLY**

### ACRONYM QUICK-SCAN

**CMH** – Center of Military History  
**ISIS** – Islamic State in Iraq and Syria  
**SDF** – Syrian Democratic Forces  
**YPG** – Yekineyen Parastina Gel

# BATTLE ANALYSIS

## Assessing Armor Operations in the Battle of Hue: Readyng Armor for Future Urban Operations

by LTC (Retired) Lee Kichen

### Part 2 of 2

While the Communist forces would suffer a tactical defeat in Hue, it proved to be a strategic victory for them. Americans would for the first time see on the nightly news a determined enemy killing and wounding their sons, brothers and fathers on an urban battlefield. The Communists, by holding the city for almost a month, struck a fatal blow against the American strategic center of gravity: the will of the public to continue to fight an increasingly bloody and futile war in which the enemy could attack urban enclaves throughout the country.<sup>1</sup>

The response of the American and

South Vietnamese forces to the Communist capture of Hue was a hasty attack against an enemy that prepared a detailed plan for the deliberate defense of the city. During the earlier stages of the operation, U.S. and Republic of Vietnam (RVN) commanders were unable to forge a common operating picture. Allied commanders, rather than responding immediately and decisively with overwhelming firepower, only slowly increased their combat power in and around the city, which allowed the still numerically superior and entrenched enemy to further fortify their positions. Marine Corps leaders haphazardly fed infantry into the battle without the benefit of armor.

The failure of the Army of the Republic of Vietnam (ARVN) to sufficiently garrison the city encouraged the enemy to seize Hue.<sup>2</sup> The Communists, by entering the city first, gained “home field” advantage. They knew the terrain and quickly emplaced obstacles, built fighting positions and fortified buildings. The Marine Corps’ failure to immediately isolate the city allowed the enemy to retain the initiative and continued to flow more troops and supplies into the city, while simultaneously slowing logistic support to the Marines and ARVN in the city. Had armor and cavalry augmented the blocking force, it may have earlier stemmed the flow of enemy soldiers into the city.



Figure 1. Marines clear buildings in New City with tank support.

Junior Marines reacted quickly and decisively in the first 72 hours of the fight. They displayed uncanny flexibility by transitioning from fighting in a vegetative jungle to fighting in a concrete jungle. Disciplined, well-trained and competently led Marine infantrymen and tankers, often beyond the reach of their commanders, retained a degree of combat effectiveness long enough to learn and generate effective tactics, techniques and procedures.

Hue demonstrated that the nature of a city fight demands rapid decision-making at the lowest level. There are two unambiguous lessons from the Battle of Hue: The Marines' impulsive "ride to the sound of the guns" attack into a city against a vaguely understood enemy was unnecessarily costly and that armor is key to success in urban operations (UO).

## Assessing Armor operations in Battle of Hue City

**Movement, maneuver and fires:** Armor's physical and psychological effect was vital in the Allied victory in Hue. Although designed to fight other armored vehicles at long ranges, the M48A3 and M50 mounted recoilless rifles possessed a degree of precision fire that artillery and close-air-support (CAS) lacked. With stringent rules of engagement and weather limiting CAS and artillery fires, tanks and the Ontos were the only long-range weapons

capable of suppressing enemy infantry, neutralizing strongpoints and covering engineers.

Despite Armor's impressive firepower and ability to protect infantry, the narrow streets and confusing street plans in The Citadel compromised the tankers' ability to maneuver, mass fires and engage some critical targets. Operating in the close confines of The Citadel, maneuvering was nearly impossible. Thus M48A3s and M50s were only capable of conducting frontal attacks.

The compartmentalization and canalization of The Citadel battlespace provided the enemy multiple avenues of approach for ambushes with rocket-propelled grenades and B40 rockets. Infantry, by closely "hugging" tanks and moving between the tanks and the buildings, gained a degree of protection while suppressing enemy ambushes. Conversely, the dismounted Marines provided the tanks security from enemy anti-tank fire.

Armor in the New City with wider streets and greater spacing between buildings was able to quickly shape the battlefield. The Marines exploited the wider streets in New City by placing tanks in blocking positions at intersections; with the main and coaxial machineguns covering one street and the commander's .50-caliber machinegun covering another, they could impede enemy movement and provide fire covering infantry movement.<sup>3</sup>

The weight and dimensions of the

M48A3 – 52 tons, 24.5 feet long, 12 feet wide, 12 feet high (including the commander's cupola) and the main gun that extended nearly 10 feet beyond the tank's front slope – was less than ideal for urban combat. The two bridges spanning the Perfume River were unable to support the M48A3; consequently the tempo of the fight in The Citadel slowed until the utility landing craft (LCUs) ferried tanks to the north bank. The Citadel's narrow streets and alleys limited the range, in degrees, the turret could traverse the gun main; the main gun's maximum elevation at +19 degrees and its maximum depression of -9 degrees created considerable dead space for the crew and infantry operating close to a tank.

The lighter and smaller Ontos possessed greater mobility in The Citadel's narrow streets and alleys but lacked the survivability of the M48A3.<sup>4</sup> Because the Ontos was vulnerable to rifle-propelled grenades and B40 rockets, LTC Ernest Cheatham Jr. kept them, as often as possible, in a hull-down position. In addition to the recoilless rifles mounted on the tracked Ontos, each infantry battalion had eight 106mm recoilless rifles in its heavy-weapons company mounted on small, wheeled flatbed vehicles (the M274 "Mechanical Mule"). The tank platoon commander in 1<sup>st</sup> Battalion, 5<sup>th</sup> Marines, controlled that battalion's M274s.<sup>5</sup>

**Sustainment:** At the beginning of the operation, there was no discernable logistics plan. Helicopters conducted much of the resupply activities early in the operation until truck convoys began operating on Highway 1 from Phu Bai to Hue. U.S. Navy LCUs and LCM-8s, and South Vietnamese Navy motorized junks on the Perfume River, were the principal transportation modes from DaNang until Highway 1 reopened.

Trucks carried diesel in 55-gallon drums during the first week of the battle. Refueling tanks from 55-gallon drums was an inordinately time-consuming process keeping, at any time, several tanks out of the battle. Diesel consumption was comparatively low because of relatively little movement by the tanks during battle. Diesel resupply ceased to be a concern after the



Figure 2. A tank supports 1<sup>st</sup> Battalion, 5<sup>th</sup> Marines, in The Citadel.

Navy brought in a 10,000-gallon fuel bladder.<sup>6</sup>

Large-caliber ammunition resupply throughout the operation was a problem. The expenditure of 90mm tank rounds and 106mm recoilless rounds was nearly 10 times above normal rates. M48A3s shot a total of 4,284 main-gun rounds, with the Ontos crews firing 4,104 rounds. The tanks switching among high-explosive rounds further strained Class V resupply on the already tenuous lines of communications. Consumption for the two gun tanks and two flame tanks in a provisional platoon was 1,154 main gun rounds of all types, 15,000 .50-caliber rounds and 155,000 7.62mm rounds. The flame tanks shot 60 seconds of napalm.<sup>7</sup>

The tanks and Ontos, lacking night-vision fire-control systems, returned to the ARVN compound after dark where they rearmed, refueled and received maintenance. While battle-damaged tanks were quickly repaired, the crews paid a heavy price. Only 11 of the 55 tankers who entered the city remained in Hue after the battle's conclusion. Infantrymen who later replaced the wounded and killed tankers received some simple driver training and instruction in the vehicle's weapons systems.<sup>8</sup> With all engagements at 300 yards or less, rudimentary training on the tank's main gun and the Ontos' recoilless rifle was sufficient.

**Intelligence:** The intelligence breakdowns at the strategic and the operational level are well-documented. The intelligence failures at the tactical level were no less glaring. The lack of planning was conspicuous evidence of Allied arrogance; by omission or commission, there was no intelligence preparation of the battlefield (IPB).

The Task Force X-Ray commander was quick to blame his higher echelon for intelligence failures. Without conducting his own IPB, his Marines were without information regarding building types; construction material; design and dimensions of the structures; natural and manmade obstacles; and their influence on his scheme of maneuver. The attack – with little or no sense of the enemy's size, capability, intentions or disposition – and an insufficient

force led to the failure of the Marines' initial attack. The lack of IPB at Hue underscores that importance in future UOs of cavalry scouts performing reconnaissance.

**Protection:** Engineer support with its mobility, countermobility and survivability capabilities are essential for the protection of the force in an UO. However, only two engineer companies (-) were committed to the operation; Company A (-), 326<sup>th</sup> Engineer Battalion, supported 1<sup>st</sup> Brigade, 101<sup>st</sup> Airborne Division (Airmobile), and Company A (-) (Reinforced) supported the 1<sup>st</sup> Marines. The Marine engineers repaired a bridge between Phu Bai and Hue on Highway 1 and a floating bridge over the Perfume River. Had engineer assets capable of clearing the rubble-strewn streets been available, the mounted and dismounted Marines could have rapidly shaped the battlefield to their advantage.

**Task-organization:** The friendly task-organization reflected the ambiguous nature of the operation and inadequate pre-operation planning. As forces trickled into the fight, fragmentary orders often modified the force's task-organization. The 1<sup>st</sup> Marine Regiment ultimately gained the 1<sup>st</sup> Battalion, 1<sup>st</sup> Marines; 1<sup>st</sup> Battalion, 5<sup>th</sup> Marines; and 2<sup>nd</sup> Battalion, 5<sup>th</sup> Marines; however, none were combined-arms formations.

The infantry battalions and companies remained pure; tank, anti-tank, artillery, engineer and transportation assets remained under the control of the regimental headquarters.<sup>9</sup>

## Readying Armor for future urban operations

**Doctrine:** After more than two decades of combat and decisive-action operations combat-training-center rotations, the Army possesses a wealth of real-world experience to shape and revise UO doctrine. Future doctrine must reflect the lessons-learned at Hue. United States and RVN failures, were in part, attributable to a lack of reconnaissance and security (R&S).

Current R&S-operations doctrine pays scant attention to UO. Developing urban doctrine for R&S formations should begin with 1) explicitly indicating the tactical tasks in an urban environment an R&S formation can execute; and 2) which type of R&S tasks each echelon has the ability of conducting.<sup>10</sup> Training Circular (TC) 90-5, **Training for Reconnaissance Troop in Urban Operations**, February 2010, although somewhat dated, can serve as foundation for updating R&S doctrine in an urban environment.

**Training, education and leader development:** Urban combat before and



**Figure 3. Citizens and American tanks in the streets of Hue.** (Photo from the personal collection of COL (Retired) Ben Knisley)

after Hue underscores the value and effectiveness of the armor/infantry team. However, current UO training is infantry-centric, focusing on the street-to-street and block-to-block fighting, “door kicking,” breaching buildings and clearing rooms while ignoring the important lesson of Hue that infantry and armor combined operations are a necessity.

TC 3-20.15, *Tank Platoon Collective Task Publication*, July 2013, and TC 3-21.8, *Rifle and Mechanized Infantry Platoons Task Publication*, August 2013, contain only one and two UO unit tasks, respectively. TC 3-90.5, *Combined Arms Battalion Collective Task Publication*, has only one UO unit task. There are no urban-specific tasks on the current mission-essential task lists for the armor brigade combat team (ABCT), combined-arms battalion, armor company, cavalry squadron and cavalry troop.<sup>11</sup> Effective urban-focused collective and individual training requires a comprehensive set of UO-related unit tasks, embedded in revised training publications.

There is a dearth of urban-specific instruction in the Army’s professional military education and functional courses. The Command and General Staff Officer Course’s (CGSOC) Advanced-Operations Course includes battle analyses of Hue and Fallujah; however, each is only two hours long. It is essential that the CGSOC include in its division-offensive and defensive-operations modules instruction on planning and executing UO for battalion and higher commanders and staffs. Urban instruction in the Maneuver Captain’s Career Course (MCCC) is in the Stryker brigade combat team offensive-operations module, and for Reserve Component captains, it is in the maneuver technical module.<sup>12</sup>

The Maneuver Center of Excellence’s current functional courses such as the Scout Leader’s Course, Cavalry Leader’s Course and the Master Gunner Course are models for developing a suite of UO functional courses. An “Urban Combat Leader’s Course” (UCLC) could have two tracks – one for lieutenants who have completed the Armor or Infantry Officer Basic Leader Course, and another for graduates of MCCC.

Noncommissioned officers (NCOs) attend UCLC after completing the Maneuver Senior Leader Course.

The Armor School’s Abrams, Bradley and Stryker master-gunner courses have been unqualified successes. The primary mission of master gunners is to provide expertise in the preparation for gunnery training. The implementation of a Master Urban Trainer and Planner Course would produce NCOs who would advise and assist commanders at all levels with the planning, development and execution of UO training.

**Training facilities:** Existing venues for UO training are not large enough to support large formations equipped with tanks; the Army must establish an urban combat training center (UCTC) large enough to train and evaluate a complete ABCT. However, austere appropriations for the Army mean a large-scale facility for heavy formations is unachievable in the foreseeable future. Rather than establishing a national UCTC, local or regional UCTCs are within the realm of the possible. These facilities must be capable of supporting combined arms, Stryker and light-infantry battalions. The Zussman Village Military Operations in Urban Terrain (MOUT) Training Center at Fort Knox, KY, can serve as model for future battalion-size UCTCs.

The unfortunate, recent urban disturbances provided the active-Army and Army National Guard formations deployed in support of local and law enforcement agencies with invaluable training in UO. Failure to capitalize on the lessons-learned during these operations would be tragic. The Army would benefit by authorizing commanders to engage in some form of mutual training with neighboring law-enforcement agencies. The Zussman MOUT center has been a venue for combined-arms/joint and civilian law-enforcement training.

**Organization:** The existing Armor, Stryker and infantry brigade combat teams (BCTs) are general-purpose formations not organized specifically for UO. In a fiscally constrained environment, the Army lacks resources to add a new brigade-sized formation to the force. However, the Army has a track

record of using existing units as laboratories for testing and evaluating new formations. For example, the Army converted 9<sup>th</sup> Infantry Division in 1983 to a high-technology test bed to develop a motorized division designed to fill the gap between heavy and light divisions. Also, in 1997 the 4<sup>th</sup> Infantry Division (Mechanized) became the Force XXI Experimental Force in which the Army studied the ways and means of converting the remnants of a forward-deployed Cold War Army to a force-projection Army for the 21<sup>st</sup> Century.

The Army can take a BCT offline and convert it to an experimental formation to design an urban BCT (UBCT) capable of operating independently as a part of division- or corps-sized formation. The experimental UBCT’s initial configuration could include three battalions: 1) a mechanized-infantry combined-arms battalion built around two mechanized-infantry companies and one tank company; 2) a Stryker infantry battalion with a Mobile Gun System platoon; and 3) a light-infantry battalion with two infantry companies and a light tank company equipped with the mobile protected firepower (MPF) vehicle now in its test and development phase. The UBCT operating in a megacity must be capable of simultaneously conducting offensive, defensive and stability operations.

This force design will require only minimal changes to the structure of the current BCT’s Cavalry squadron or the field-artillery and brigade-support battalions. However, UOs have historically required significant engineering support; Armor formations in future UOs must have a robust wet and dry gap-crossing capability. When the UBCT reaches objective-force status, the Army can transform three active and three National Guard BCTs to UBCTs. The active BCTs will have either a European or Indo-Pacific regional focus. Each National Guard UBCT will partner with an active UBCT to leverage resources to enhance and improve command and staff processes; collective and individual training; and leader development for both organizations.

**Materiel:** The Army’s emerging MPF system answers the need for a light tank capable of supporting light-infantry formations. The Army canceled the

M8 Armored Gun System, the M551 Sheridan's proposed successor in 1997. It would be a disservice to light-infantry formations if history repeats itself and the Army cancels the current MPF project.

The first formations to deploy during a future contingency operation will be light infantry, requiring a light tank that is air transportable in enough numbers – deployable from over-the-horizon vessels landing craft is a necessity. The Army's continuous modernization of the Abrams fleet and, hopefully, the fielding of the MPF presents Armor with an opportunity to network with semi-autonomous or autonomous drones and other robotic systems. During an UO, unmanned systems can conduct resupply operations; identify and target non-line-of-sight threats; and perform mobility and counter-mobility tasks.

## Conclusion

George Santayana's maxim that "those who do not learn from history are doomed to repeat it" applies to how mounted formations will fight in a future large-scale urban operation. The lessons of Hue and other UO are invaluable to today's tanker, scouts and infantrymen. These lessons must be the catalysts for modernizing the mounted force's doctrine, structure, training, equipment, facilities and leader development for fighting in cities. Modernizing how the Army conducts UO cannot be incremental; by nibbling on the edges of the status quo, the magnitude of the threat dictates that this transformation must be total and accomplished without delay.

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*and a master's of arts degree in counseling psychology from Chapman College. His awards and honors include the Legion of Merit (one oak-leaf cluster) and Meritorious Service Medal (two oak-leaf clusters).*

## Notes

<sup>1</sup> Headquarters U.S. Marine Corps, *Military Operations on Urbanized Terrain (MOUT)*, Washington, DC, 1998.

<sup>2</sup> Combat after-action report, Task Force X-Ray.

<sup>3</sup> Alec Wahlman, *Storming the City: U.S. Military Performance in Urban Warfare from World War II to Vietnam*, Dennison, TX: University of Texas Press, 2015.

<sup>4</sup> Kendall D. Gott, *Breaking the Mold: Tanks in the City*, Combat Studies Institute Press, 2020. For the purpose of this article, "armor" includes Marine Corps M-48A3 tanks; the M-50 Ontos 106mm recoilless-rifle track-mounted system; M-42 "Dusters" from Battery D, 1<sup>st</sup> Battalion, 44<sup>th</sup> Artillery, carrying twin rapid-firing 40mm guns; M-67A2 flame tanks; and ARVN M-41 Bulldog light tanks.

<sup>5</sup> Wahlman.

<sup>6</sup> COL S.S. Hughes, commanding, Headquarters, 1<sup>st</sup> Marines (-), 20 Marines, combat AAR, March 20, 1968.

<sup>7</sup> Hughes and retired USMC LTC Ray Stewart, *Marine Corps Tanks and Ontos in the Vietnam War*, Federal Way, WA: Marine Corps Vietnam Tankers Historical Foundation, 2019. Note: Napalm consumption would have been significantly higher had the flame tanks been equipped with complete firing mechanisms.

<sup>8</sup> Wahlman.

<sup>9</sup> Hughes.

<sup>10</sup> CPT Kyle D. Woods, "Recon and Security in the Urban Fight," *ARMOR*, Fall 2020 edition.

<sup>11</sup> U.S. Army Armor School, *Armor Fiscal Year (FY) 2021 Training and Leader Development Strategy*, Fort Benning, GA, 2020.

<sup>12</sup> MCCC Map, FY 21 and MCCC map-RC.

## ACRONYM QUICK-SCAN

**ABCT** – armored brigade combat team

**ARVN** – Army of the Republic of (South) Vietnam

**BCT** – brigade combat team

**CAS** – close air support

**CGSOC** – Command and General Staff Officer Course

**IPB** – intelligence preparation of the battlefield

**LCU** – landing craft, utility

**MCCC** – Maneuver Captain's Career Course

**MPF** – mobile protected firepower

**MOUT** – military operations in urban terrain

**NCO** – noncommissioned officer

**R&S** – reconnaissance and security

**RVN** – Republic of (South) Vietnam

**TC** – training circular

**UBCT** – urban brigade combat team

**UCLC** – Urban Combat Leader's Course

**UCTC** – urban combat training center

**UO** – urban operations



Figure 4. Hue in ruins, 1968. (Photo courtesy Center of Military History)

# 110TH CAVALRY REGIMENT



Yellow is the color associated with Cavalry. The horseshoe symbolizes the mission and functions of the organization. The divided shield alludes to the Pacific and European areas, in which elements of the former regiment served during World War I and World War II. The pile, simulating an arrowhead, refers to the assault landing in the Philippines, while the two stars refer to the Presidential Unit Citation (Navy) and Philippine Presidential Unit Citation awarded to an element of former regiment. The distinctive unit insignia was originally approved for 26<sup>th</sup> Cavalry Regiment Nov. 3, 1965. It was amended to revise the symbolism Nov. 21, 1969. The insignia was redesignated for 110<sup>th</sup> Cavalry, with the description and symbolism revised effective Feb. 1, 1988.

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